United States Department of the Interior
Bureau of Land Management

New Mexico State Office January 2000

Proposed Statewide Resource Management Plan Amendment/
Final Environmental Impact Statement

New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management

Joint Leads for project
New Mexico Bureau of Land Management
State of New Mexico

Cooperators for Project
Chaves County
Catron County
Eddy County
Grant County
Hidalgo County
Lincoln County
Luna County
Otero County
Sierra County

It is the mission of the Bureau of Land Management to sustain the health, diversity and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/NM/PL-00-001-1020

The cover art work was provided by Robert Jones a rancher and BLM grazing permittee from Otero County.

Bureau of Land Management
New Mexico

Office of the Lieutenant Governor
New Mexico

Dear Reader:

Enclosed for your review is the Proposed Statewide Resource Management Plan Amendment (RMPA)/Final Environmental Impact Statement (EIS) for New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.

This Proposed Statewide RMPA/Final EIS for New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management reflects input by the public who commented on the Draft. Citizens serving on the New Mexico Resource Advisory Council (RAC) reviewed all the comments and made numerous changes to clarify the RAC Alternative. They are to be commended for their concern for the health of public land.

All parts of the proposed plan amendment may be protested. Only those persons or organizations who participated in the planning amendment and analysis process may protest issues previously raised in the Draft. Protests must be sent to the Director (WO-210), Bureau of Land Management, Attn: Brenda Williams, 1849 C Street, N.W., Washington, D.C. 20240. Also send a CC to the Office of the Lieutenant Governor, State Capitol Santa Fe, New Mexico 87505 - Attention Cecilia Abeyta. Protests must be postmarked on or before February 28, 2000. The protest must include the following information: (1) Name, mailing address, telephone number, and interest of the person filing the protest; (2) a statement of the issue or issues being protested; (3) a statement of the parts or part being protested; (4) a copy of all documents addressing the issue or issues that were submitted during the planning amendment process by the protesting party or an indication of the date the issue or issues were discussed for the records; and (5) a concise statement explaining why the BLM New Mexico State Director's decision is wrong.

For those who do not want to protest the proposed plan amendment but wish to comment on the proposed plan, they may do so. All comments received will be considered in preparation of the Record of Decision. Comments must also be postmarked on or before February 28, 2000 and sent to: BLM - S&G Comment, NM931, P.O. Box 27115, Santa Fe, NM 87502-0115.

At the end of the 30-day protest period, the Proposed Plan Amendment, excluding any portions under protest, will become final. Approval will be withheld on any portion of the plan under protest until final action has been completed on such protest. A Record of Decision will be published and the RMP updated to reflect the amendment changes following resolution of any protests.

Thank you for participating in this planning amendment process. Your continued involvement will allow us to effectively manage public land and resources throughout the State.

_____
M. J. Chávez
BLM State Director

_____
Walter D. Bradley
Lieutenant Governor, New Mexico

ABSTRACT

New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management

Proposed Statewide Resource Management Plan Amendment and Final Environmental Impact Statement

Draft ( ) Final (X)

United States Department of the Interior, Bureau of Land Management (BLM)

1. Type of Action: Administrative (X) Legislative ( )

2. Abstract: This environmental impact statement (EIS) documents the effects of adopting statewide standards for public land health and guidelines for grazing management on BLM-administered land in New Mexico. The standards or guidelines adopted would be incorporated into eight existing resource management plans (RMPs) covering public land in New Mexico. This action is proposed in accordance with revised regulations for livestock grazing on BLM-administered land (43 CFR §4100). The proposed standards and guidelines were developed in consultation with the statewide Resource Advisory Council (RAC). Consistent with the regulations other agencies as well as the public had input.

The Proposed Plan's standards and guidelines are those recommended by the RAC. The modifications are shown in Chapter 2. The RAC Alternative was also the Preferred Alternative in the Draft RMPA/EIS.

Four alternatives are considered in the Proposed RMPA/Final EIS. They include the No Action (present management) Alternative, County Alternative, Fallback Alternative and the RAC Alternative.

3. For further information contact:

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Approved:_____ Approved:_____

State Director, BLM Lt. Governor, New Mexico

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LIST OF ACRONYMS

ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
AHPA	Archeological and Historic Preservation Act of 1994
AIRFA	American Indian Religious Freedom Act of 1978
ALMRS	Automated Lands and Minerals Record System
AML	Appropriate Management Level
AMP	Allotment Management Plan
ARPA	Archeological Resources Protection Act of 1979
AUM	Animal Unit Month
AUY	Animal Unit Year
BLM	Bureau of Land Management
BMP	Best Management Practices
°C	Degrees Celsius
C	Custodial
CDNST	Continental Divide National Scenic Trail
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CR	Conservation Recommendations
CRMP	Coordinated Resource Management Plan
DPC	Desired Plant Community
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FCRS	Farm Cost and Returns Survey
FLPMA	Federal Land Policy and Management Act
FS	Forest Service
FTE	Full Time Equivalent
GABS	Grazing Authorization and Billing System
GIS	Geographic Information System
HMA	Herd Management Area
HMAP	Herd Management Area Plan
I	Improve
IO	Input/Output Model
LAP	Livestock Activity Plan
LGMP	Livestock Grazing Management Practice
LUP	Land Use Plan
M	Maintain
MFP	Management Framework Plan
MLRA	Major Land Resource Area
mm	Millimeters
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NMDFRS	New Mexico Division of Forestry and Resource Survey
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMSU	New Mexico State University
NMWQCC	New Mexico Water Quality Control Commission

NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source Pollution
NRCS	Natural Resource Conservation Service (formerly Soil Conservation Service)
OHV	Off Highway Vehicle
PAH	Polycyclic Aromatic Hydrocarbon
PILT	Payment-In-Lieu-of-Taxes
PMOA	Programmatic Memorandum of Agreement
PNC	Potential Natural Community
PRIA	Public Rangeland Improvement Act
RAC	Resource Advisory Council
RMP	Resource Management Plan
ROD	Record of Decision
ROW	Right-of-Way
RPM	Reasonable and Prudent Measures
R&PP	Recreation and Public Purposes
SHPO	State Historic Preservation Officer
SMA	Special Management Area
TCP	Traditional Historic Properties
T&E	Threatened and Endangered
TGA	Taylor Grazing Act
TIA	Takings Implication Assessment
TUP	Temporary Use Permits
VOP	Value of Production
WA	Wilderness Area
WHA	Wildlife Habitat Area
WSA	Wilderness Study Area
USDI	United States Department of the Interior
USFWS	U.S. Fish and Wildlife Service

CONVERSIONS

Length

mm/25.4 = inches
cm/2.54 = inches
meters x 3.28 = feet

Area

hectares x 2.47 = acres
square kilometers x .386 = sq. miles
1 section is approximately 640 acres and/or 1 sq. mile

Temperature

degrees Celsius x 1.8 +32 = degrees Fahrenheit

SUMMARY

SUMMARY

This Statewide Resource Management Plan Amendment (RMPA)/Environmental Impact Statement (EIS) documents the effects of adopting standards for public land health and guidelines for livestock grazing management on Bureau of Land Management (BLM) administered land in New Mexico. The standards and guidelines would be incorporated into eight BLM resource management plans (RMP) that cover approximately 13.5 million acres. In addition, for each alternative there are existing land use decisions that are not in conformance with the standards. These decisions would be changed to bring them into conformance.

The action is proposed in accordance with revised regulations (43 CFR §4180) for livestock grazing on BLM-administered land. Standards describe conditions needed for healthy sustainable public rangelands and relate to all uses of public land. They provide the measure of resource quality and functioning condition upon which the public land health will be assessed. Each standard will be most effective if it can be tailored for site-specific activities that occur in different areas. However, by incorporating the standards into the existing RMPs, all activities will be subject to the standards. In order to measure the effectiveness of each standard in specific areas, a set of measurable indicators and associated criteria are identified. These indicators and criteria would be used to evaluate the standards. The RMPA/EIS analysis identified that most activities will be minimally affected by the standards. The most affected activity will be livestock grazing.

Guidelines for livestock grazing are management tools, methods, strategies, and techniques designed to maintain or achieve standards. Guidelines for other activities are not a part of the proposal, but may be developed at a later date.

Of the 2,193 grazing allotments, it is projected that between 287 to 480 allotments would have lands that do not meet the standards, depending on the alternative. Of the allotments having lands not meeting the standards, the majority would have to adjust the management of their livestock to some extent. The most common management adjustment would be a deferment from grazing period, or a change in season of use. In a few cases, a reduction in livestock numbers would be needed; however, large scale reductions in numbers of livestock are not expected because adjustments have been made over time through the BLM Rangeland Monitoring Program. In the short-term, some allotments would increase livestock numbers while others may be adjusted downward. Statewide, the numbers are expected to remain at approximately the past 10-year average. In the long-term, livestock use is expected to increase as the rangelands improve in health and the forage production increases.

In the Proposed Statewide RMPA/EIS, four alternatives were analyzed in detail. The No-Action (Present Management) Alternative would continue land management and livestock grazing practices that BLM used prior to the passage of the current grazing regulations approved on February 22, 1995. These practices cannot be continued under the current regulations; however, an analysis is provided to serve as a baseline for analysis of the other three alternatives.

The Resource Advisory Council (RAC) Alternative (Proposed Action) was developed by the New Mexico Statewide RAC. The RAC members were from various parts of the State and represented various uses and interests in public land. During the development process, they received a great deal of input from the public. In addition to the physical and biological standards, it provides a separate standard for Sustainable Communities and Human Dimension. Following the public comments period on the Draft RMPA/EIS the RAC modified their proposed alternative. The modifications make the alternative more in concert with the regulations (43 CFR §4180).

The County Alternative is proposed by the New Mexico members of the Coalition of Arizona/New Mexico Counties. This alternative provides for a balance in each standard between the human dimension and physical and biological values and goals. This alternative focuses on insuring that historic grazing practices are maintained.

The Fallback Alternative was developed as part of the current grazing regulations (43 CFR §4180) published in 1995. The Fallback Standards and Guidelines are now in place on an interim basis pending completion

of the analysis and Record of Decision. This alternative does not include Human Dimension Standards. Rather, it focuses on the physical and biological goals and values and is the most environmentally proactive.

All three alternatives provide for improved physical and biological conditions for the public land in New Mexico. However, the alternatives vary by the number of allotments improved and in the treatment of the human dimension.

Although the alternatives vary on the treatment of the human dimension, quantification of social and cultural impacts is not possible due to lack of being able to identify specific lands not meeting the standards. Therefore, the level of impact at the individual, family and community level can not be determined, only the direction of impact can be estimated.

University of New Mexico's Public Policy Center conducted a public opinion survey in May of 1995. Considering the top priority of the different multiple uses on public rangelands, they found that New Mexicans rate the potential uses as follows:

Point 1

49% view environmental preservation as top priority,
23% view commercial uses as top priority,
22% view recreational uses as top priority, and
6 % view all three as having equal priority

Point 2

A substantial majority (over 75%) of New Mexico citizens believe it to be moderately to extremely important to preserve ranching as a way of life in the state (Baca, 1996).

RAC Alternative

In public comments on the Draft RMPA/EIS, both rural and environmental interests have suggested other alternatives, but view the RAC Alternative as being more satisfactory than another alternative. Thus, both view the RAC as a middle ground alternative. The RAC Alternative provides for maintenance of ranching as a way of life in the State and for enhancement of the physical and biological environment and improved recreational resources on the lands currently not meeting the standards. Therefore, the alternative is providing for the maintenance and improvement of qualities that a majority of the New Mexico citizens value.

County Alternative

Of all the alternatives, the rural interests supported the County Alternative the most, while the environmental interests opposed the County Alternative the most. Based on the University of New Mexico's Public Policy Center poll, this alternative would please the New Mexico citizens who view preservation of ranching as a way of life to be moderately to extremely important. However, it may be a concern to the New Mexico citizens who view environmental preservation or recreation as the top priority.

Fallback Alternative

Environmental interests support the Fallback Alternative over any other alternative. However, the rural interests oppose the Fallback Alternative the most of any of the alternatives. Based on the University of New Mexico's Public Policy Center poll, this alternative would please the New Mexico citizens who view environmental preservation or recreation as top priority, but may be a concern to New Mexico citizens who view preservation of ranching as a way of life to be moderately to extremely important.

Chapter 1

CHAPTER 1
PURPOSE AND NEED

INTRODUCTION

This Statewide Resource Management Plan Amendment (RMPA)/Environmental Impact Statement (EIS) analyzes the effects of adopting standards for public land health and guidelines for livestock grazing management in New Mexico. At the conclusion of this process, a set of standards and guidelines will be approved and incorporated by plan amendment into the eight existing Resource Management Plans (RMPs) that cover approximately 13.5 million acres of Bureau of Land Management (BLM)-administered land in New Mexico. The acreage of public land by RMP are:

RMP Name	Record of Decision Date	Public Land Acreage
Rio Puerco	1/16/86	896,000
White Sands*	9/05/86	2,269,000
Farmington	6/10/88	1,541,000
Taos	7/26/88	564,000
Carlsbad	9/29/88	2,197,000
Socorro	1/29/89	1,518,000
Mimbres*	4/30/93	3,054,000
Roswell	10/10/97	1,490,000
Total		**13,529,000**

*(portion of the Las Cruces Field Office).
Source: Existing BLM RMP's and BLM Files.

All of the BLM-administered land in New Mexico is managed under completed RMPs.

Public land health is defined as the degree to which the integrity of the soil and the ecological processes of public land are sustained. Public land health exists when ecological processes are functioning properly to maintain the structure, organization, and activity of the system over time. Healthy public land is sustainable, thus ensuring their use and enjoyment for future generations. Healthy public land also contributes to the social and economic well being and health of many New Mexico communities. Thus healthy communities are in a better position to contribute to healthy public land by conserving and protecting the resources.

Standards describe conditions needed for healthy sustainable public rangelands and relate to all uses of the public land. They provide the measures of resource quality, condition, or function upon which the public land health will be assessed.

It is not possible to determine if every acre meets every standard or for every acre to achieve every standard. Therefore, each standard will be tailored for site-specific types of land. The ecological site is the most logical and practical unit upon which to base an interpretation of rangeland health. An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.

To determine how each standard should be tailored for site-specific situations, a set of measurable indicators and associated criteria will be developed for each ecological site. These indicators and criteria will be used to evaluate the standards and determine rangeland health.

Guidelines are either activity- or use-specific. Guidelines for livestock grazing are management tools, methods, strategies, and techniques designed to maintain or achieve standards. They will apply where the public land does not meet the standards and existing livestock grazing practices are determined to be a contributing factor. Guidelines for activities other than livestock grazing are not mandated through regulation; however, they may be developed should the need arise.

BLM's authority to manage public rangelands is established by the Federal Land Policy and Management Act of 1976 (FLPMA), Taylor Grazing Act of 1934 (TGA) and Public Rangeland Improvement

Act of 1978 (PRIA). Through this authority, BLM is responsible for managing resources on public land in a manner that maintains or improves them on the basis of multiple use and sustained yield. In 1994 BLM, through its Rangeland Reform '94 initiative, began developing new regulations for grazing administration. Through this process, which had extensive public involvement, BLM launched its "Rangeland Health" initiative and finalized the new regulations for grazing administration in Title 43 of the Code of Regulations (43 CFR Part 4100; 60 FR 9894) which were adopted by the Department of the Interior and became effective August 21, 1995.

The process for development, approval, maintenance, and amendment of RMPs and their associated EISs was initiated under authority of Section 202(f) of FLPMA and Section 202c of the National Environmental Policy Act of 1969 (NEPA) 1969. The process is guided by BLM planning regulations (43 CFR 1600-1610), and Council on Environmental Quality Regulations (40 CFR 1500-1508). This proposed RMPA amendment is in accordance with Federal regulations on grazing (43 CFR 4100), issued on February 22, 1995. The regulations direct implementation of standards and guidelines subject to NEPA and the BLM planning regulations.

Subpart 4180 of the new regulations (see Appendix A), provided that BLM State Directors, in consultation with Resource Advisory Councils (RACs) where they exist, develop state or regional standards and guidelines for approval by the Secretary of the Interior by August 12, 1997. If this did not occur, the fallback standards and guidelines described in Subpart 4180.2 of the regulations would apply. BLM began implementation of the fallback standards and guidelines starting March 1, 1998 where it had been determined that standards were not being met and livestock grazing was a contributing factor. Generally this was where riparian areas were not in properly functioning condition.

The BLM in New Mexico is committed to the development and implementation of locally adapted standards and guidelines. The purpose of developing standards at the state level is to provide an additional opportunity for residents of New Mexico to debate and participate in determining the standards for which the BLM-administered public land will be managed. Additionally, New Mexicans are provided the opportunity to further participate in identification of livestock grazing guidelines that will be used to assist in meeting the standards on BLM-administered public land in New Mexico.

The proposed standards and guidelines, developed through the New Mexico RAC with considerable public input, are analyzed as the proposed action in this document. The New Mexico RAC is chaired by a Governor's representative and is made up of 15 members of the public and elected officials representing various uses and interests on BLM-administered land.

Following the regulations (43 CFR 4180), the New Mexico BLM initiated a series of five RAC meetings from October 1995 through May 1996, for the purpose of developing the standards and guidelines for New Mexico. Draft standards and guidelines were developed and then taken to the public in a series of scoping meetings in June 1996. Both written and oral comments received during the scoping process were given to the RAC, which convened for three additional meetings in August, September, and October 1996 to develop a proposed action to be analyzed in the NEPA process. At each RAC meeting there was time for the public to address the council with their concerns, followed by questions from the RAC members on those concerns.

The purpose of this RMPA/EIS is to analyze what standards and guidelines should be implemented in New Mexico and the social, economic, and environmental effects of doing so. This EIS process is one step to accomplish these goals in collaboration with the New Mexico RAC and citizens of the State.

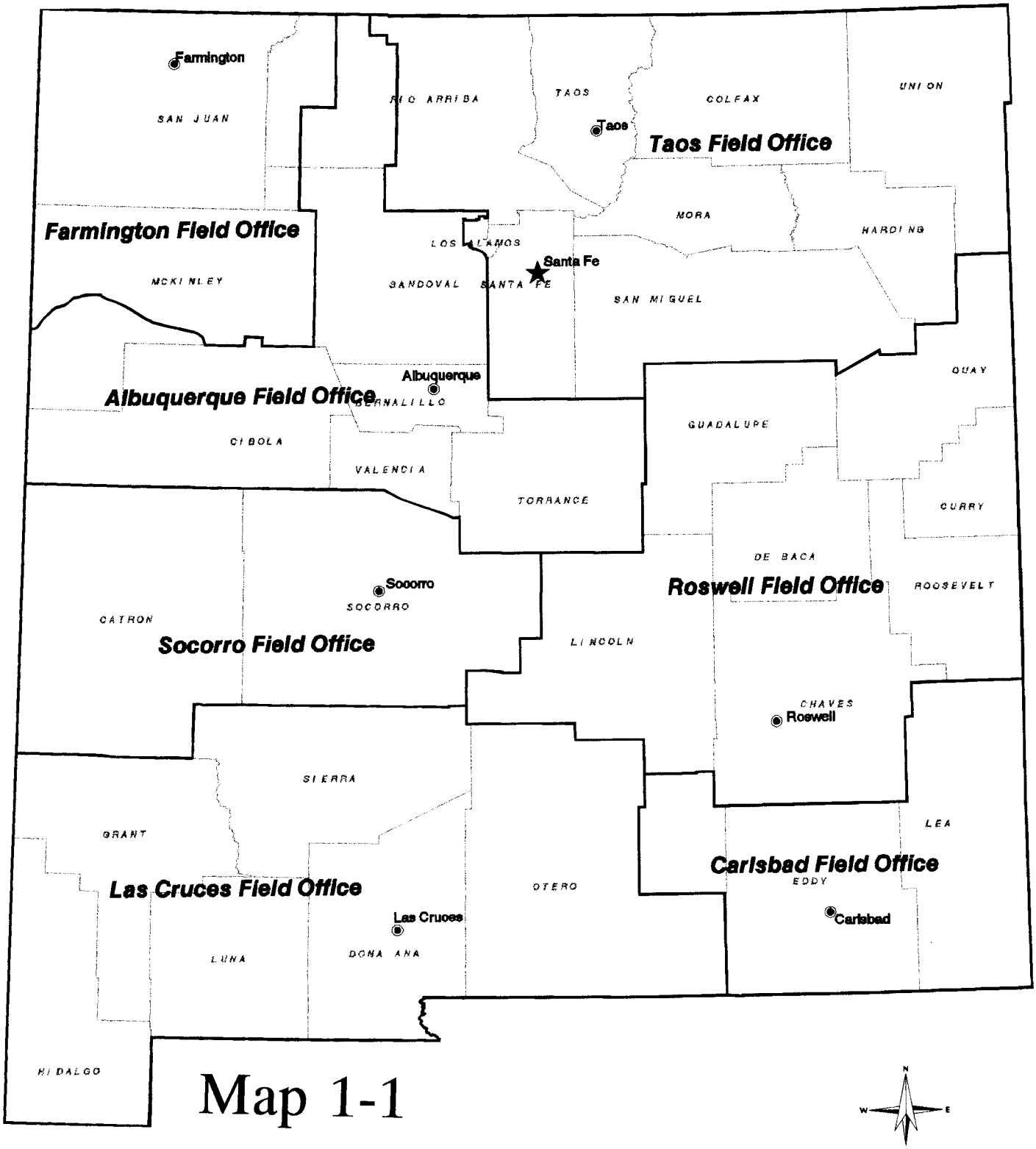
LOCATION AND DESCRIPTION OF THE PLANNING AREA

The planning area encompasses all surface acreage administered by BLM Field Offices in the state of New Mexico. The boundaries are shown on Map 1-1.

PLANNING AMENDMENT PROCESS

The NEPA/RMPA process consists of the same nine steps used to prepare the RMPs. This process requires the use of an interdisciplinary team of resource

NEW MEXICO
BLM Field Offices



Map 1-1

★ State Office

● Field Office

Produced by the Bureau of Land Management
New Mexico State Office Geographic Sciences Team

specialists for the completion of each step. The steps are described in the planning regulations.

The NEPA/RMPA process began with a Notice of Intent published in the *Federal Register* on January 31, 1996. The Notice of Intent opened the public comment period on the proposal to prepare an environmental document and modify all New Mexico RMPs. A second *Federal Register* notice was published on May 23, 1996, announcing a series of 16 scoping meetings and that the comment period which began with the January Notice of Intent would close June 28, 1996. The comments received at the scoping meetings and through written submissions showed a high level of controversy over the standards and guidelines. Based on this information, it was decided to prepare this EIS to assess, display, and compare the social, economic, and environmental consequences of implementing standards and guidelines according to the requirements of NEPA.

This detailed analysis covers the following four alternatives:

No-Action (Present Management) Alternative
RAC Alternative (Proposed Action) - The RAC Alternative has been modified based on public comments and has been selected as the Proposed Plan)
County Alternative
Fallback Alternative

Present management direction from the RMPs (No-Action Alternative) was analyzed to provide a baseline from which impacts were measured.

An RMPA/EIS team was formed that included representatives from each New Mexico BLM field office and a data contact person from each field office (see list of preparers in Chapter 5). The team met in October 1996 to start the data gathering process and agree on procedures that would ensure a consistent interdisciplinary analysis. In November 1996, the interdisciplinary team was expanded to include team members from the State of New Mexico having knowledge in specific areas (also listed as preparers in Chapter 5).

The Draft RMPA/EIS was published and released for a 90-day comment period, announced by a Notice of Availability in the *Federal Register*, and news releases in major newspapers throughout the state. The BLM, in consultation with the New Mexico RAC, considered comments received on the Draft RMPA/EIS in the preparation of this Proposed RMPA/Final EIS. The Proposed RMPA/Final EIS will be published and sent to those commenting on the Draft. The Proposed RMPA/Final EIS will be announced by a Notice of Availability in the *Federal Register* and through news releases in major newspapers throughout the State. At this time BLM will submit to the Governor the Proposed RMPA/Final EIS and identify any known inconsistences with State and local plans, policies, and programs. The Governor will then have 60 days in which to identify inconsistencies and provide recommendations in writing to the State Director. People who have participated in the process and who are adversely affected may protest to the BLM Director. Following resolution of any protest, the standards and guidelines will be forwarded to the Secretary of the Interior for approval.

Following the standards and guidelines approval for use in New Mexico, each BLM field office will begin implementation based on the alternative selected. A logical system of prioritization will be adopted due to BLM funding and staffing limitations.

The first step will be to interpret site indicators and develop management targets for the standards that are specific to ecological site. Consistent with recommendations from academic and other rangeland interests, the BLM plans to develop site indicators and targets in consultation with an interagency team of rangeland specialists providing peer review.

Once the management targets are established, the public land can be inventoried to determine areas that meet or do not meet the standards. Consistent with the recommendation by the RAC, a statewide approach to application of the ecological site targets has not been developed by BLM. Each field office will develop priorities and procedures in consultation with the academic institutions, Soil and Water Conservation Districts, State Land Office, New Mexico Department of Agriculture, Natural Resource Conservation Service, Forest Service, county representatives, other landowners, grazing permittee/lessee and other rangeland interests.
When it is determined that an area does not meet a standard, the BLM will project why the area does not meet the standard. When current livestock grazing

practices are projected to be one of the reasons the livestock grazing guidelines will be applied to the area. When applying the grazing guidelines, the BLM manager will consult with the grazing permittee/lessee and other interested public to develop corrective actions. Specific application of the guidelines would occur at the local level in careful and considered consultation; cooperation; and coordination with lessees, permittees, and landowners involved in accordance with Section 8 of the PRIA. The BLM regulations, 43 CFR Section 4180.2 (c), state that: "the authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year."

When other current activities appear to be the reason the area is not meeting the standard, adjustments in management will be made to the activity as rapidly as practical.

USE OF THIS DOCUMENT

This document is not a decision document. The document will not be used for day-to-day management of the public land. An EIS is an analytical tool to assist a decision maker in reaching a decision. The decision to be made will be displayed in the Record of Decision that is issued after the Final EIS is published. In this particular case, the Record of Decision will cover the statewide standards, livestock grazing guidelines, and RMP amendments.

ISSUES

The following major environmental issues and concerns are addressed in this document:

natural resources effects
multiple use effects
commodity production effects
economic and social effects
statutory rights effects

PLANNING CRITERIA

The planning criteria for this RMPA are the same as those for the RMPs for each of the field offices. Thus planning criteria will be used when each planning document is to be amended. A copy of the criteria for each of the existing RMPs is available by request from the BLM New Mexico State Office.

RELATIONSHIP TO EXISTING PLANS

Existing RMPs were reviewed to determine if the standards and guidelines being developed through the RAC or by the county, and the fallback standards and guidelines conformed to each RMP. The results of the conformance review was documented for each RMP (see Appendix B-1). While most decisions and objectives conformed, a few needed to be modified or replaced. Those that conformed could be clarified through plan maintenance, (see Appendix B-2) while only those to be modified or replaced would have to go through the plan amendment process. All proposed standards and guidelines, however, needed to be taken through the NEPA process. Because of this requirement, and to lessen the confusion and simplify the proposal, it was decided to consider the entire action as a statewide plan amendment. The statewide amendment, once approved, will amend as necessary the eight existing RMPs.

PREFERRED ALTERNATIVE SELECTION (IN DRAFT)

Following a review of the analysis of the alternatives, BLM selected the RAC Alternative as the Agencies' Preferred Alternative in the Draft document.

The State of New Mexico selected the County Alternative as their preferred alternative. The Lieutenant Governor provided the following three paragraph statement for inclusion in the document:

> On behalf of the State of New Mexico I want to thank all the participants who were involved in producing this document. I believe it is the first of its kind that involved state, county and federal participants as equal partners under NEPA. This final product demonstrates that collectively we can provide an equitable response to environmental issues.
> The RAC Alternative fully addresses the technical aspects of the environment and considers the human dimension as one of those standards. The County Alternative

recognizes the human dimension to be the major integral component before

implementing the standards. Without the human dimension there is no implementation. The County Alternative gives full consideration toward minimizing any negative impacts in social, economic and cultural areas.

In addition, the County Alternative more clearly focuses and recognizes states' rights and jurisdictions of its natural resources. Therefore, the State of New Mexico requests that strong consideration be given to the County Alternative as the preferred alternative.

PROPOSED PLAN SELECTION

The BLM has selected the modified RAC Alternative as the Agencies' Proposed Plan. The Proposed Plan is in concert with requirements of the regulations (43 CFR §4180).

The modified RAC Alternative (Proposed Plan) was developed by the New Mexico Statewide RAC. Following publication of the Draft RMPA/EIS the RAC considered public comments on the Draft, as well as comments from BLM and recommended a modified RAC Alternative. The RAC members were from various parts of the State and represented various uses and interests in public land. The modified RAC Alternative (Proposed Plan) is included in this Proposed RMPA/EIS on page 2-3 through 2-6.

Chapter 2

CHAPTER 2
PROPOSED ACTION AND ALTERNATIVES

INTRODUCTION

Four alternatives are considered and analyzed in this document:

No Action Alternative (Present Management)
RAC Alternative (Proposed Action) Modified to become the Proposed Plan
County Alternative
Fallback Alternative

The proposed action or alternatives, if selected and approved, could be implemented and would amend all the RMPs in New Mexico by adopting the standards and guidelines approved through the NEPA process. The livestock grazing regulations require that land health standards and livestock grazing guidelines be used for future management; therefore, continuing with present management is not an option. Additionally, during the preparation of this document the August 12, 1997 deadline relating to the fallback standards and guidelines elapsed. Therefore, fallback standards are now in place. However, management that was occurring when this document was initiated is reflected as the No Action Alternative. The No-Action Alternative can not be selected, but serves as a bench mark on which to compare the other alternatives that have been proposed. Appendix B-1 presents a summary of the present decisions in the RMPs that would be affected by adopting the Proposed Action, the County Alternative, or the Fallback Alternative. (There are many other decisions in the RMPs that are not affected; these decisions are not shown.)

The following is a detailed description of each of the alternatives.

NO ACTION ALTERNATIVE (PRESENT MANAGEMENT)

Standards For Public Land Health

Although BLM does not have an established standard identified, the ecological site and late seral condition are the standards generally utilized as the goal for management. The ecological site serves as the mapping unit and database for rangeland information. The Natural Resource Conservation Service (NRCS--formerly the Soil Conservation Service) developed a National Range Handbook as a guide to using the range site as the mapping and descriptive unit for rangelands. In 1982, the BLM also adopted the range site inventory procedure. In 1994, the BLM replaced the range site with the ecological site, to be consistent with the updated procedures of the NRCS. Under this alternative for rangeland management in New Mexico, the ecological site would continue to be the base unit for rangeland management, and late seral condition would be used as a management target.

Guidelines for Livestock Grazing

The BLM is responsible for resolving rangeland issues. When there are livestock grazing issues that need to be resolved, BLM takes appropriate and timely action. To make necessary adjustments it may implement a livestock grazing plan or adjust the terms and conditions of the permit or lease.

Livestock grazing plans are developed based on priorities set by following RMP decisions. These livestock grazing plans developed either by the BLM or NRCS (NRCS takes the lead when less that 50 percent of the allotment is public land). These plans are developed in consultation, coordination, and cooperation as directed by PRIA. Regardless of the agency that develops these livestock grazing plans, they must accomplish the following:

include the terms and conditions of the permit
describe the desired resource condition
prescribe the livestock grazing practices that will be used to meet the desired resource condition
specify the flexibility of the plan, and provide for monitoring

The lead agency (BLM or NRCS) then completes a NEPA environmental assessment prior to approval of the livestock grazing plan.

As mentioned previously, the plan must provide for monitoring. BLM relies on basic rangeland studies to monitor grazing allotments that include recording precipitation, trend (plot photos and periodic measurements for plant composition and ground cover), actual use by livestock, and forage utilization. Depending on the resource objectives, other appropriate methods of monitoring are used.

After the allotment monitoring results are collected, BLM reviews and evaluates the data and files them in the study file for that allotment. Periodically, or upon request, the livestock grazing plan and results of monitoring may be evaluated to determine if the plan is consistent with management objectives of both the individual rancher and BLM for rangeland health or sustainability.

Types of adjustments that might be made on the allotment after evaluation could include time of year and duration of livestock use, number or kind of livestock, or other existing livestock management practices. Any adjustments are made in consultation with the permittee and other interested public.

Additional monitoring may be conducted by BLM as conditions warrant and resources are available. Allotments determined as high priority are monitored even if the grazing plan is not complete. Allotments not determined as high priority only receive periodic field observations.

RAC (PROPOSED ACTION) ALTERNATIVE (PREFERRED ALTERNATIVE)

The RAC Alternative was developed locally by the New Mexico Resource Advisory Council (RAC), with public input from a variety of interested public. The RAC Alternative has been modified based in both internal and public comments received on the draft. These comments were taken before the RAC and the RAC made several changes to the alternative. The changes the RAC made to the alternative are shown below.

Changes to the RAC Alternative

The page numbers referred to in this section are the page numbers from the Draft RMPA/EIS. The changes have been included in the section entitled "MODIFIED RAC ALTERNATIVE" on page 2-3 of this Proposed RMPA/Final EIS.

Page 2-2: The Upland Sites Standard has been rewritten to add the words "State and Tribal" in the last sentence of the standard.

Page 2-2: The Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species Standard has been changed by adding the following words "such as hydrologic cycle, nutrient cycle, and energy flow" and the word "native" in the first sentence. In the second sentence the words "are met to" have been deleted. In addition a third sentence was added to the standard.

Page 2-3: The Riparian Sites Standard has been changed by adding the words "properly functioning" in the first sentence. The subheading "Meaning that:" has been deleted making the sentence which was formerly below the heading a part of the standard. The sentence has been changed by adding "State and Tribal" to that standard.

Page 2-3: The Riparian Site Indicators has been changed to add the words "morphology and" to the first indicator and "degree of" to the second indicator.

Page 2-3: In the Human Dimension Standard the title was changed to be "Sustainable Communities and Human Dimension Standard". In the first sentence (Human Dimension) was deleted and the word "integral" was changed to "essential". Meaning that: was deleted. In the next paragraph, sixth line, the words "create and" were deleted as were "conditions under which people and nature co-exist". After the word harmony in line eight the period was changed to a comma and the following wording was added "the various public land resources consistent with multiple use to best meet the present and future needs of the people, those being the permittees, lessees, other affected interests, local communities in the maintenance of productive and sustainable ecological sites for present and future generations of Americans". The last sentence would then be deleted as most of that sentence has already been incorporated into the previous sentence. No change was made to the wording of the indicators, however they should have been shown as bullet phrases.

Page 2-3 and 2-4: The Guidelines for Livestock Grazing section was renamed as Livestock Grazing Guidelines and an introduction written using a good portion of the

first five paragraphs. The introduction is much of the text that was there before with the following exceptions. In the first paragraph; the word "any" had been deleted from the first sentence, and the second sentence has been deleted. The second paragraph has not been changed. The third paragraph has had the words "interested public" added between "permittees" and "and land owners". The fourth paragraph; second sentence has been changed by adding an "s" on "resource" and adding "and BLM's management objectives", deleting the words "full appreciation for this integrated relationship and" just prior to the word recognition and adding the following words "for the impact that BLM's management objectives have on private land owners." following the word recognition and deleting the words "of the rights of private landowners to enjoy the benefits of that ownership." at the end of the paragraph. The fifth paragraph has been changed by deleting the word "should" and adding "are designed to" following the word "Guideline" which starts the sentence. A period was placed after the word "practices". A second sentence was then added by deleting the word "to" and adding the word "They" and adding the following words "and consider the natural migration patterns of impacted wildlife." after the words "improve rangeland health"

Page 2-4: Prior to the first numbered guideline a subheading called "**Guidelines**" was added. Guideline 1 was changed by replacing the second word "should" with the word "will" and adding the word "native" following the word "promote"; deleting the word "and" between "plant health" and "soil stability"; then adding the words "and micro-organisms" after "soil stability"; adding the words "stream channel morphology and function" after "water quality"; adding "native" before "wildlife"; deleting the word "and" and adding the words "including special status" after "wildlife". Subpart (b) was changed by adding the following words "and soil permeability, maintain, improve, or restore riparian-wetland functions including energy dissipation, sediment capture, ground water recharge, and streambank stability," between "infiltration" and "and prevent excessive evaporation;". Also subpart (d) was changed by adding the words "vegetation, wildlife," in the middle of the sentence following "topography," while deleting the word "and" before kind and after class and adding the word "and" between kind and class; and also deleting the words health/condition before "of livestock" and adding "when developing and implementing livestock grazing management practices." Subpart (d) was numbered as guideline number 2. The subsequent guidelines formerly 2-6 were renumbered as 3-7. Guideline 3 (formerly 2) was changed by deleting "Future livestock management" before "facilities" and making Facilities the start of the sentence. The words "should be" were deleted and the word "are" added. The word "natural" was deleted before riparian-wetland as were the words "the desired future condition."and the words riparian-wetland function." were added to the end of the sentence.

The RAC Alternative described and analyzed in the draft is now the modified RAC Alternative described below. The RAC alternative was the BLM preferred alternative. The RAC alternative has now been modified based on comments received on the draft.

MODIFIED RAC (PROPOSED ACTION) ALTERNATIVE (PROPOSED PLAN)

Standards for Public Land Health

Upland Sites Standard

Upland ecological sites are in a productive and sustainable condition within the capability of the site. Upland soils are stabilized and exhibit infiltration and permeability rates that are appropriate for the soil type, climate, and landform. The kind, amount, and/or pattern of vegetation provides protection on a given site to minimize erosion and assist in meeting State and Tribal water quality standards.

Indicators for this standard may include but are not limited to:

> Consistent with the capability of the ecological site, soils are stabilized by appropriate amounts of standing live vegetation, protective litter and/or rock cover.
>
> Erosion is indicated by flow patterns characteristics of surface litter soil movement, gullies and rills, and plant pedestalling.
>
> Satisfactory plant protection is indicated by the amount and distribution of desired species necessary to prevent accelerated erosion.

Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species Standard

Ecological processes such as hydrologic cycle, nutrient cycle, and energy flow support productive and diverse native biotic communities, including special status, threatened, and endangered species appropriate to site and species.

Desired plant community goals maintain and conserve productive and diverse populations of plants and animals which sustain ecological functions and processes.

Restoration should first be achieved with native, and when appropriate non-native plants.

Indicators for this standard may include but are not limited to the following:

Commensurate with the capability of the ecological site, plant and animal populations are:

Productive

Resilient

Diverse

Sustainable.

Landscapes are composed of communities in a variety of successional stages and patterns. Diversity and composition of communities are indicated by the kinds and amount of species. Endangered and special status species are secure and recovering. With the goal of delisting and ensuring that additional species need not be listed within New Mexico.

Riparian Sites Standard

Riparian areas are in a productive, properly functioning, and sustainable condition, within the capability of that site.

Adequate vegetation of diverse age and composition is present that will withstand high stream flow, capture sediment, provide for groundwater recharge, provide habitat and assist in meeting State and Tribal water quality standards.

As Indicated By:

Indicators for this standard may include but are not limited to:

Stream channel morphology and stability as determined by:

Gradient

Width/depth ratio

Channel roughness

Sinuosity.

Streambank stability as determined by degree of :

Shearing and sloughing

Vegetative cover on the bank.

Appropriate riparian vegetation includes a mix of communities comprised of species with a range of:

Age

Density

Growth form.

Sustainable Communities and Human Dimension Standard

Economic, social and cultural elements are essential components of public land management.

When engaged in NEPA and RMP planning and decision-making for public land management, the New Mexico BLM, in consultation with Tribal, State and local governments, individuals, and other concerned public and private organizations, will use available means and measures to maintain in productive harmony, the various public land resources consistent with multiple use to best meet the present and future needs of the people, those being the permittees, lessees, other affected interests, and local communities in the maintenance of productive and sustainable

ecological sites for present and future generations of Americans.

As Indicated By:

Indicators for this standard may include but are not limited to:

Efforts at conflict resolution, negotiation and communication.

Formal and informal agreements and partnerships with private landowners and others.

Consider the following factors:

Economic (income, tax base, related services, and risk assessment);

Social (community stability, aesthetics, values and population change);

Cultural (customs or traditions, values and sense of community).

LIVESTOCK GRAZING GUIDELINES

Introduction

Guidelines are reasonable and practical management options which, when applied, move rangelands toward statewide standards. Guidelines also balance resource goals contained in RMPs with social, cultural/historic, and economic opportunities to sustain viable local communities, and to consider recreation and aesthetic values. Guidelines are based on science, past and present management experience, and public input.

These guidelines are for public lands livestock grazing. They do not apply where public lands are deemed unsuitable or not used for livestock grazing. These guidelines will be used to develop grazing management practices that will be developed and implemented at the watershed, allotment, or pasture level.

Specific application of these guidelines (Livestock Grazing Management Practices--LGMPs) will occur at the local level in careful and considered consultation, cooperation and coordination with lessees, permittees, interested public, and land owners involved.

New Mexico's intermingled land ownership pattern creates a patchwork of resource management objectives. The resources and BLM's management objectives should be viewed as a whole with recognition for the impact that BLM's management objectives have on private land owners.

Guidelines are designed to encourage innovation and experimentation in the development of alternative livestock grazing management practices. They improve rangeland health and consider the natural migration patterns of impacted wildlife.

Guidelines

1. LGMPs will promote native plant health, soil stability and micro-organisms, water quality, stream channel morphology and function, and habitat for native wildlife including special status, threatened and endangered species, by providing the following basic requirements of rangeland ecological sites:

(a) Allow for plant recovery and growth time;

(b) Allow residual vegetation on both upland and riparian sites to protect the soil from wind and water erosion, support infiltration, and soil permeability, maintain, improve, or restore riparian-wetland functions including energy dissipation, sediment capture, ground water recharge, and stream bank stability, and prevent excessive evaporation;

(c) LGMPs include the use of livestock to:

(1) Integrate organic matter into the soil,
(2) Distribute seeds and establish seedings,

(3) Prune vegetation to stimulate growth,
(4) Enhance infiltration.

2. Season, duration, frequency and intensity of use should be flexible and consider climate, topography, vegetation, wildlife, kind and class of livestock when developing and implementing livestock grazing management practices.

3. Facilities are located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland function.

4. Give priority to rangeland improvements and land treatments that offer the best opportunity for achieving standards.

5. Where LGMPs alone are not likely to achieve the desired plant community (including control of noxious weeds), land management practices including, but not limited to, prescribed fire, biological, mechanical, and chemical land management treatments should be utilized.

6. Native plant species are recommended for rehabilitating disturbed rangeland. Seeding of non-native species will be considered based on local goals, native seed availability, and cost.

7. The public land grazing resources of New Mexico are managed on the basis of multiple use and sustained yield. Livestock grazing produces food and fiber, and contributes to a diverse, balanced, competitive, and resilient economy. Management should provide opportunities for a variety of individual choice and risk taking ventures in a responsible manner. This guideline may include, but is not limited to, consideration of impacts to employment, earnings, per capita income, investment income, Federal government payments to the State, Tribal and local governments, and tax base.

COUNTY ALTERNATIVE

The standards and guidelines in this alternative were developed through the efforts of the New Mexico members of the Coalition of Arizona/New Mexico Counties. This alternative is printed as it was given to BLM by the Coalition. BLM agreed to include the alternative for analysis purposes; however, BLM does not necessarily concur with parts or all of the alternative as written. The Coalition stated that the alternative must be evaluated as a whole, not just as parts, to fully understand the alternative. The BLM sent a letter to the Coalition of Counties following the public comment period offering the Coalition the opportunity to make changes to the alternative based on the comments received. Word was received back through the State Team Leader that the Coalition declined to make any changes to the County Alternative.

The definitions listed below were provided by the New Mexico members of the Coalition of Arizona/New Mexico Counties. These definitions are to be used only with the County Alternative.

Definitions

Desired Plant Community-the designed vegetative mosaic to meet RMP goals as developed through a statutory process that balances resource conservation with individual, social, cultural/historic and economic opportunities to promote, sustain and enhance local communities.

Allotment Grazing Right Owner-Owner of the preference on BLM lands.

Ecological Site-Classification of an area that would be expected to produce a characteristic potential biotic community that has a predictable plant composition and animal production.

Guideline-Guidelines for grazing management are methods and practices to ensure that standards can be met or that progress can be made toward that end.

Production Goals-The level of goods and services, both commodity and non-commodity, expected to be achieved from the management of a given area of land. These are designed to meet statutory requirements and public values as developed at the local level.

Optimum Infiltration-The capture of precipitation based on soil type and geologic conditions measured by the delivery of water to ground and surface sources.

Site Potential-The ability of a particular site to produce various vegetation compositions and production levels as limited by edaphic, climatic, geologic, genetic and topographic factors.

Standard-An acknowledged measure of comparison regarding a resource upon which a judgment or decision is based. Measurements include adequate and reproducible sampling methods, sampling size and sampling frequency and duration to obtain discrete values for each ecological site within a management area.

Sustainable-Capable of maintaining RMP goals in perpetuity. Sustainable can be equated with proper ecological functioning.

Standard For Public Land Health

Rangeland Health: A satisfactory condition or an upward trend in range condition in an ecological site, with desired plant community and site potential as its basis, measured against established RMP goals, as determined by statutory requirements balanced with the conservation of individual, social and cultural/historic economic opportunities to promote, sustain and enhance local communities.

Grazing Guideline

For the purposes of maintaining or promoting adequate amounts of vegetative cover ground cover, including standing plant material and litter, to support infiltration, maintain soil moisture storage, and stabilize soils; promoting the opportunity for seedling establishment of appropriate plant species when climatic conditions and space allow; and incorporating the use of non-native plant species only in those situations in which native species are not available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health:

a. Grazing practices should provide for a satisfactory or long-term increasing vegetation and litter cover that will assure erosion and sedimentation levels are acceptable for specific ecological sites.

b. Grazing practices should provide for a stable or upward long-term vegetal trend as evidenced by photo records, and frequency, cover and composition data.

c. Actual use studies, actual use numbers and utilization maps continue to be developed and coordinated with vegetal trend data. Rangeland studies will be multi-year to assure validity and account for climatic variations. Until RMP production goals are specifically established and desired plant communities designated, grazing practices should provide for a satisfactory or long term increasing vegetative and litter cover to meet statutory requirements, established uses, and protection of the soils to not exceed acceptable soil loss tolerances, thereby assuring a full range of options for future land management decisions.

d. Allotment management plans should be mutually developed by the BLM, other agencies with jurisdiction by law and allotment grazing right owner to encourage ungulate distribution to attain desired forage use levels.

e. Management of livestock within special management areas (Wilderness, Wilderness Study Areas, Areas of Critical Environmental Concern and Resource Conservation Areas) should be cooperatively developed with the allotment grazing right owner and/or lessee.

Fundamental Guideline: Management Guidelines are any reasonable and practical management options that move rangelands toward statewide standards. Guidelines are based on long term scientific data and trends, past and present management experience, and public input. Guidelines are developed and implemented at the local or allotment level and should be reflected in the management plan.

State Primacy Considerations

1. The jurisdiction over soil and water resource conditions belong to the New Mexico Soil and Water Conservation Districts (SWCDs). Therefore, the BLM FO Managers should be working closely with the SWCDs in the development of District Area Conservation Plans that focus on site specific soil conditions.

Statutory or Regulatory Reasoning

1. Under 43 CFR §1610.4-4(e) and (g) the agency is required to consider the ability of the resource area to respond to local needs when formulating reasonable alternatives.

2. The Taylor Grazing Act, Granger-Thye Act, Multiple Use Sustained Yield Act, Federal Land Policy Management Act and the Public Rangelands Improvement Act all point to sustained livestock production as the intended primary use of the BLM lands.

These acts also create the requirements to consult, coordinate and cooperate with the State, Tribal, Local governments and the permittee and/or lessee in the development of management actions.

3. The National Environmental Policy Act (NEPA) and Council on Environmental Quality Regulations require notification of and opportunity for State and Local Governments to be parties to Federal Agency decision making. The NEPA regulations also require that cultural, economic and social impacts be investigated and disclosed to the decision maker(s) and the public.

The intent of the NEPA at §101(b)(4) calls for "providing a variety of individual choices."
4. The proposed standard and guidelines exceed the fallback standards and guidelines 43 CFR Ch.11 §4180.2(f); address the minimum standards requirements of 43 CFR Ch.11 §4180.2(d); and address the minimum guidelines requirements of 43 CFR Ch.11 §4180.2(e) and ensure that the conditions set forth in 43 CFR Ch.11 §4180.1(a) through (d) are achieved.
5. As its name suggests, the Taylor Grazing Act established the BLM lands for grazing.
6. Site-specific actions shall be coordinated with the state agencies or any sub-division thereof, to control or contain the targeted undesirable plant species as defined by state or county laws.

Comments

1. In keeping with the definition of standard, this allows for the specifics to be crafted at the local level as they relate to all uses.
2. If the standard is not tied down to the specific goals in the RMP, then all concerned, from the BLM, to the public, to the allotment grazing right owner will not have tangible targets to achieve through management.

Standard

Biotic Community: A satisfactory level of flora and fauna diversity exist for each ecological site with desired plant community and sustainable site potential as its basis, measured against established RMP production goals as determined by statutory requirements balanced with the conservation of individual, social and cultural/historic economic opportunities to promote, sustain and enhance local communities.

Grazing Guidelines

For the purposes of maintaining or promoting the appropriate kinds and amounts of soil organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow; restoring, maintaining or enhancing habitats to assist in the recovery of Federal threatened and endangered species; restoring, maintaining or enhancing habitats of Federal Proposed, Category 1 and 2 Federal candidate, and other special status species to promote their conservation; maintaining or promoting the physical and biological conditions to sustain native populations and communities; emphasizing native species in the support of ecological function:
a. Desired plant communities (DPC) should be mutually developed between the agency and the permittee as management targets. Manage existing plant community toward desired plant community recognizing site potential.
b. Wildlife population trends should be measured by a series of surveys. Use areas, distribution, composition; sex and age ratios and reproductive rates should be established for key species.
c. The habitats and populations of candidate, sensitive, rare, New Mexico State listed, or other special status categories should be managed in accordance with state law. Determine the role of local populations with respect to national population levels. If special habitat management actions are required the agency should conduct a private sector impact assessment.
d. Humans are an integral part of the biotic community and safeguards should be taken to promote life, liberty and the pursuit of happiness.
e. Until RMP production goals are specifically established and desired plant communities designated, grazing practices should provide for a satisfactory or long term increasing vegetative and litter cover to meet statutory requirements, established uses, and protection of the soils to not exceed acceptable soil loss tolerances, thereby assuring a full range of options for future land management decisions.

Fundamental Guideline: Management Guidelines are any reasonable and practical management options that move rangelands toward statewide standards. Guidelines are based on long term scientific data and trends, past and present management experience, and public input. Guidelines are developed and implemented at the local or allotment level and should be reflected in the management plan.

State Primacy Considerations

1. The jurisdiction over the wildlife belongs to the state of New Mexico.
2. Where appropriate the New Mexico Wildlife Conservation Act will be used for the development of recovery plans for threatened or endangered species on BLM lands in New Mexico.
3. The New Mexico Department of Agriculture administers the permitting for the collection of native plants.

Statutory or Regulatory Reasoning

1. Site-specific actions for federally listed threatened and endangered species shall conform to ESA procedures in Section 7, 9 and 10.
2. The proposed standard and guidelines exceed the fallback standards and guidelines 43 CFR Ch.11 §4180.2(f); address the minimum standards requirements of 43 CFR Ch.11 §4180.2(d); and address the minimum guidelines requirements of 43 CFR Ch.11 §4180.2(e) and ensure that the conditions set forth in 43 CFR Ch.11 §4180.1(a) through (d) are achieved.

Standard

Watershed Health (Upland): Satisfactory upland conditions are maintaining soil stability within ecological sites, with desired plant community and site potential as its basis, indicated by optimum infiltration, capture, and delivery of precipitation, measured against established RMP goals as determined by statutory requirements balanced with the conservation of individual, social and cultural/historic economic opportunities to promote, sustain and enhance local communities.

Watershed Health (Riparian): Sustainable riparian conditions that maintain soil stability within appropriate soil loss tolerance levels and maintaining or promoting stream channel morphology for each ecological site, measured against established RMP goals as determined by statutory requirements balanced with the conservation of individual, social and cultural/historic economic opportunities to promote, sustain and enhance local communities.

Grazing Guidelines

For the purposes of maintaining or promoting subsurface soil conditions that support permeability rates appropriate to climate and soils; maintaining, improving or restoring riparian-wetland functions including dissipation, sediment capture, groundwater recharge, and stream bank stability; maintaining or promoting stream channel morphology (e.g. gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform; maintaining, restoring or enhancing water quality to meet management objectives, such as meeting wildlife needs.
a. Upland and riparian monitoring protocol will be developed at the local level on a site-specific basis.
b. Under specifically established RMP production goals, monitoring protocols and upland/riparian desired future conditions, grazing practices should provide for satisfactory or long term sustainable conditions to meet statutory requirements, established uses, and protection of the soils to not exceed acceptable soil loss tolerances, thereby assuring a full range of options for future land management decisions.
Fundamental Guideline: Management Guidelines are any reasonable and practical management options that move rangelands toward statewide standards. Guidelines are based on long term scientific data and trends, past and present management experience, and public input. Guidelines are developed and implemented at the local or allotment level and should be reflected in the management plan.

State Primacy Considerations

1. The planning for and management of soil and water resources belong to the New Mexico Soil and Water Conservation Districts.
2. The jurisdiction over water quantity in streams and impoundments belongs to the New Mexico State Engineer.
3. The jurisdiction over water quality belongs to the New Mexico Water Quality Control Commission and the Environment Department.

Statutory or Regulatory Reasoning

1. Under 43 CFR §1610.4-4(e) and (g) the agency is required to consider the ability of the resource area to respond to local needs when formulating reasonable alternatives.
2. The reasoning behind deferring to the water quality jurisdiction of New Mexico is located in 43 CFR Ch.11§4180.1(c).
3. The proposed standard and guidelines exceed the fallback standards and guidelines 43 CFR Ch.11 §4180.2(f); address the minimum standards requirements of 43 CFR Ch.11§4180.2(d); and address the minimum guidelines requirements of 43 CFR Ch.11 §4180.2(e) and ensure that the conditions set forth in 43 CFR Ch.11 §4180.1(a) through (d) are achieved.

Comments

1. Upland and riparian management are inextricable. Therefore, management prescriptions must take the conditions of both into consideration. This consideration must be made even if the uplands or riparian areas are private property or under New Mexico's or other Federal agencies' jurisdiction.

Standard

Human Dimension: Established RMP production goals of sustainable goods and services per the Multiple Use Sustained Yield Act, and other statutory requirements, shall be maintained balanced with the conservation of individual, social and cultural/historic economic opportunities to promote, sustain and enhance local communities.

Meaning that: New Mexico BLM in coordination with state, tribal and local governments, individuals and other concerned public and private organizations will use available means and measures to create and maintain conditions under which people and nature can coexist. They will initiate an approach to public land management that is integrated with social, cultural, ecological and economic goals of local communities while sustaining ecological sites.

Grazing Guidelines

a. The natural resources of New Mexico should be managed to contribute to a diverse, balanced, competitive and resilient economy and to provide opportunity, a variety of individual choice and risk taking in a responsible manner. This guideline may include but is not limited to consideration of impacts to employment, earnings, per capita income, investment income, federal government payments to the State, Tribal and Local governments, and tax base.
b. Historic production patterns from the natural resource will serve as the baseline for future production decisions. Deviation away from the historic patterns must be analyzed with respect to local community impacts.

Fundamental Guideline: Management Guidelines are any reasonable and practical management options that move rangelands toward statewide standards. Guidelines are based on long term scientific data and trends, past and present management experience, and public input. Guidelines are developed and implemented at the local or allotment level and should be reflected in the management plan.

State Primacy Considerations

1. The primary jurisdiction over the health, welfare and safety of New Mexico citizens belongs to the State, Tribal, County and Municipal governments.

Statutory or Regulatory Reasoning

1. Under 43 CFR 1610.4-4(e) and (g) the agency is required to consider the ability of the resource area to respond to local needs when formulating reasonable alternatives.
2. The proposed standard and guidelines exceed the fallback standards and guidelines 43 CFR Ch.11 §4180.2(f); address the minimum standards requirements of 43 CFR Ch.11 §4180.2(d); and address the minimum guidelines requirements of 43 CFR Ch.11 §4180.2(e) and ensure that the conditions set forth in 43 CFR Ch.11 §4180.1(a) through (d) are achieved.

FALLBACK ALTERNATIVE

The fallback standards and guidelines as described in 43 CFR Subpart 4180.2 constitute another alternative that was considered. The Fallback Alternative was developed at the national level with public input from a variety of interested public from across the nation. The final rules and regulations published in the *Federal Register* on February 22, 1995 state in 43 CFR 4180.2(f):

> In the event that State or regional standards and guidelines are not in effect by February 12, 1997, and until such time as locally developed standards and guidelines are in effect, the fallback standards and guidelines provided in 43 CFR 4180 will go into effect and will be implemented.

The New Mexico RAC sent a request to the Secretary of the Interior requesting a six-month extension to the February 12, 1997 date for the fallback standards and guidelines to take effect. The November 25, 1996 *Federal Register* amended the regulations to allow the Secretary of the Interior discretion to postpone implementation of the fallback standards and guidelines beyond February 12, 1997, but not to exceed the six-month period ending August 12, 1997. (The full text of 43 CFR 4180, which includes the fallback standards and guidelines, is included as Appendix A.)

The fallback standards for public land health are as follows:

(a) Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and landform.
(b) Riparian-wetland areas are in properly functioning condition.

(c) Stream channel morphology (including but not limited to gradient, width/depth ratio, channel roughness and sinuosity) and functions are appropriate for climate and landform.

(d) Healthy, productive and diverse populations of native species exist and are maintained.

The fallback guidelines for livestock grazing are as follows:

(a) Management practices maintain or promote adequate amounts of ground cover to support infiltration, maintain soil moisture storage, and stabilize soils;

(b) Management practices maintain or promote soil conditions that support permeability rates that are appropriate to climate and soils;

(c) Management practices maintain or promote sufficient residual vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability.

(d) Management practices maintain or promote stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions that are appropriate to climate and landform;

(e) Management practices maintain or promote the appropriate kinds and amounts of soil organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow;

(f) Management practices maintain or promote the physical and biological conditions necessary to sustain native populations and communities;

(g) Desired species are being allowed to complete seed dissemination in 1 out of every 3 years (Management actions will promote the opportunity for seedling establishment when climatic conditions and space allow.);

(h) Conservation of federal threatened or endangered, Proposed, Category 1 and 2 candidate, and other special status species is promoted by the restoration and maintenance of their habitats;

(i) Native species are emphasized in the support of ecological function;

(j) Non-native plant species are used only in those situations in which native species are not readily available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health;

(k) Periods of rest from disturbance or livestock use during times of critical plant growth or regrowth are provided when needed to achieve healthy, properly functioning conditions (The timing and duration of use periods shall be determined by the authorized officer.);

(l) Continuous, season-long livestock use is allowed to occur only when it has been demonstrated to be consistent with achieving healthy, properly functioning ecosystems;

(m) Facilities are located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland function;

(n) The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites; and

(o) Grazing on designated ephemeral (annual and perennial) rangeland is allowed to occur only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species are avoided.

New Mexico BLM was asked to interpret what the guidelines (a through o) listed above would mean if selected by the decision maker. The following is how New Mexico BLM would interpret these guidelines.

a. Management practices maintain or promote adequate amounts of ground cover to support infiltration, maintain soil moisture storage, and stabilize soils.

This means that a percent ground cover target would be established for the ecological sites. The cover target would be consistent with the capability of the site and be developed using existing research data and monitoring studies data. Ground cover could be in the form of vegetation, litter, and rock. The vegetation and litter are manageable units. Vegetative cover and litter could be a function of stocking rate (intensity of use) and distribution of animals. Over stocking could be resolved through reducing the number of animals. Distribution problems that cause too much use of desirable locations or on desirable forage plants can be resolved through a deferment program and/or through construction of range improvements such as water developments.

b. Management practices maintain or promote soil conditions that support permeability rates that are appropriate to climate and soils.

This guideline would respond to soil compaction issues. When the soil is compacted, the permeability

rate is reduced. On high winter precipitation ranges, use by animals in the spring may be delayed to allow the soils to dry. Although compaction problems are not common on BLM-managed lands, in cases were compaction is a problem, use will be deferred until grazing can occur without unacceptable levels of compaction.

c. Management practices maintain or promote sufficient residual vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability.

The riparian zone normally provides numerous unique qualities that make it a concentration zone for many human and animal activities. The moist micro environment is attractive to the casual and long-term occupants of the public lands. For example, humans often use the riparian area for camping, fishing, hunting, rafting, picnicking, and transportation routes. Numerous animals, wild and domestic, depend on the riparian zone for water, green forage and other food, cover, and escape routes.

Often human and animal users of the riparian zone will continue to use the riparian zone until it is heavily used and little vegetation is left for energy dissipation and sediment capture. This heavy use will continue unless the users are forced out to let the vegetation grow. On most BLM ranges with riparian zones, fences have been used to limit grazing in the riparian zone. However, there are cases where strip fencing the riparian zone has not been and may not in the future be required.

d. Management practices maintain or promote stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions that are appropriate to climate and landform.

When the riparian zone is heavily used, the stream widens and becomes more shallow, and sedimentation/erosion is increased. On most BLM ranges with riparian zones, fences have been used to limit use in the riparian zone and stream channel. For the riparian zone to properly function, the vegetation and stream channel must be in acceptable condition.

e. Management practices maintain or promote the appropriate kinds and amounts of soil organisms, plants, and animals to support the hydrologic cycle, nutrient cycle and energy flow.

The characteristics of the soil and plant community are primary indicators of the health of the hydrologic cycle, nutrient cycle, and energy flow. The distribution or spacing of plants, litter distribution and incorporation, plant rooting depth, photosynthetic period of the community, community age classes, and seed germination are key indicators of health.

Literally this guideline says that management practices will maintain or promote appropriate kinds and amounts of soil organisms, plants, and animals.

Basically, nutrients and energy are captured by plants. Animals eat the plants and return the nutrients to the soil. Soil organisms further break down the nutrients. This process builds the soil for water storage and more plants.

The system should be in balance. The animal use of the plants needs to occur but it must be in balance with the plant forage base. A balanced system will include proper animal use (not to high or low) and grazing practices that provide for adequate ground cover for site protection and allow the native plants to complete their life cycle. If an area is out of balance, animal numbers, distribution and/or deferment should be analyzed.

f. Management practices maintain or promote the physical and biological conditions necessary to sustain native populations and communities.

This guideline establishes that management practices (grazing practices as well as rangeland improvements) will provide for physical, and biological conditions necessary to sustain (nourish and support) native wildlife and plants.

g. Desired species are being allowed to complete seed dissemination in 1 out of every 3 years (Management actions will promote the opportunity for seedling establishment when climatic conditions and space allow).

First, it should be recognized that year-long use has a different impact than growing season long use. For year-long use, all forage use does not occur during the growing season. In New Mexico with its short summer growing season, year-long use often defers about ½ to

3/4 of the forage for use during the dormant season. However, the forage that is desirable by species or location may not receive a deferment. On ranges that are uniform in species, well watered, gentle sloping, and properly used, the desired species can set seed every year that the precipitation is adequate.

On the other hand, ranges that are grazed only during the growing season, rough, poorly watered, or have "ice cream" species may have to have a deferment program to achieve proper use.

h. Conservation of Federal threatened or endangered, proposed, category 1 and 2 candidate, and other special status species is promoted by the restoration and maintenance of their habitats.

Threatened and endangered species are to be protected and promoted by BLM as directed by the Endangered Species Act.

i. Native species are emphasized in the support of ecological function.

This means that programs that are developed and implemented to promote ecological function will primarily use native species. For example, fire rehabilitation programs, to increase forage, would use native species.

j. Non-native plant species are used only in those situations in which native species are not readily available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health.

This guideline is really the same as (i)- BLM and permittees can use non-native seed but the first choice is native seed.

k. Periods of rest from disturbance or livestock use during times of critical plant growth or regrowth are provided when needed to achieve healthy, properly functioning conditions (The timing and duration of use periods shall be determined by the authorized officer).

According to this guideline, if BLM authorized officer believes that growing season deferment is needed to achieve the management objectives, the authorized officer can prescribe it. The process of determining timing and duration of the use periods would include appropriate consultation, cooperation, and coordination.

l. Continuous, season-long livestock use is allowed to occur only when it has been demonstrated to be consistent with achieving healthy, properly functioning ecosystems.

This guideline says that continuous (year-long), season-long (growing season-long every year) grazing is allowed to occur where it is demonstrated to be consistent with ecosystem function.

Although it is generally accepted that year-long use is acceptable and perhaps preferred on many southwestern ranges, this guideline would require each allotment with (1) areas not meeting the standard and (2) year-long or growing season-long livestock use to be monitored to demonstrate that the livestock management practices are acceptable. Monitoring programs would be developed through appropriate consultation, cooperation, and coordination.

m. Facilities are located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland function.

This guideline would require that constructed range improvements be moved if they are interfering with riparian objectives.

n. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.

This guideline has been followed by BLM for some time; however, a review of projects and perhaps modification of older projects would be necessary.

o. Grazing on designated ephemeral (annual and perennial) rangeland is allowed to occur only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species are avoided.

There are no designated ephemeral ranges on BLM-managed lands in New Mexico at this time. Should some be designated, this guideline would apply.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DETAILED STUDY

The following alternatives were considered during scoping for this analysis, and were eliminated from detailed study.

Suitability Alternative

A number of those commenting during the scoping period suggested that BLM incorporate suitability analysis into the rangeland health standards and livestock grazing guidelines. The comments suggested that areas with steep slopes, low amounts of precipitation, or certain soils be classified as unsuitable for livestock grazing. Livestock grazing would then be stopped on the unsuitable areas.

After consideration, an alternative incorporating suitability was not developed for analysis in this EIS because it is inconsistent with BLM's current approach to grazing management. The suitability approach historically has been used by BLM as a part of the interpretation process for range surveys. In the past, range surveys or inventories were used to estimate grazing capacity in the adjudication process.

The determination of suitability or unsuitability was one step in completion of a range survey. In that process, areas classified as unsuitable were rated as having a zero capacity by the survey. The unsuitable lands were often intermixed with suitable areas within a given area. Therefore, suitability was used only for a level of expected forage use and was not used to determine if grazing should be eliminated.

Currently, BLM uses rangeland monitoring data to adjust livestock grazing capacity information rather than the one-time forage surveys. By using monitoring to evaluate grazing capacity, BLM focuses on looking at the effects of grazing on-the-ground as opposed to projecting possible effects. Because BLM now uses a more up-to-date technique of rangeland monitoring rather than the older method, suitability is no longer used and thus is not considered as a viable alternative.

No Grazing Alternative

This alternative has been analyzed in detail in the national Rangeland Reform '94 EIS, and in previous EIS documents. Livestock grazing is authorized by law and regulation, and is well established within the BLMs multiple-use mandate. Resource conditions do not warrant a statewide prohibition of livestock grazing. Analysis of a no grazing alternative is not considered feasible or necessary.

Chapter 3

CHAPTER 3
AFFECTED ENVIRONMENT

INTRODUCTION

This chapter describes the physical, biological, social, and economic environment that would be affected by implementation of the proposed action or other alternatives. Not all aspects of the environment are addressed; generally only those aspects affected and those that influence effects on public land resources and resource uses are discussed.

The public lands of New Mexico are diverse, due to the intersection of at least five major ecosystems, including the Great Plains, Great Basin, Chihuahuan Desert, the Rocky Mountain, and Sierra Madre. Implicit in the presence of these ecosystems is a diversity of climate, geology, landform, elevation, and other physical attributes contributing to their uniqueness.

MAJOR LAND RESOURCE AREAS (MLRAs)

For the purposes of this EIS, the affected environment descriptions of vegetation and soils are analyzed based on the Major Land Resource Areas (MLRAs) described by the U.S. Department of Agriculture, NRCS (1981). Descriptions of the MLRAs used in this section are nearly verbatim from the NRCS publication. These descriptions include BLM acreage estimates and a brief analysis of the existing vegetation types (biomes) in each MLRA. Each MLRA is given a code number. These data were derived from geographic information system (GIS) analysis of vegetation types on a small scale map produced by the New Mexico Gap Analysis Project (Thompson et al. 1996). The Gap Project vegetation types were grouped into biome types (biological communities characterized by similar plant life forms) which provide a coarse, regional scale description of biological communities. Biome types used included the following:

- **Conifer forest** - all conifer forest types including ponderosa pine.
- **Woodland** - all pinon-juniper types. mountain scrub, and interior chaparral
- **Grassland** - all grasslands including Great Plains grasslands, Chihuahuan Desert grasslands, and Great Basin desert grasslands.
- **Desert** - all desert types including, Chihuahuan Desert and Great Basin Desert.

Descriptions of the biomes within each MLRA are contained within the "BLM Estimate of Existing Vegetation" section in each MLRA description acreages and percentages of MLRA's and Biomes on public land are presented in Tables 3-1 and 3-2. Following the MLRA descriptions are two sections that include an overall summary of ecological status of vegetation statewide and the current status of riparian systems in New Mexico. Riparian systems are treated separately, due to the small percentage of land they occupy and the disproportionately high importance they have to our natural systems.

The following MLRA descriptions were taken directly from *Land Resource Regions and Major Land Resource Areas of The United States* (United States Department of Agriculture, Soil Conservation Service 1981) A*griculture Handbook 296.* New Mexico MLRA's are also shown on Map 3-1. Photos in this section were taken in the MLRA being described to provide the reader a perspective of the MLRA described.

36-New Mexico and Arizona Plateaus and Mesas

Photo 3-1

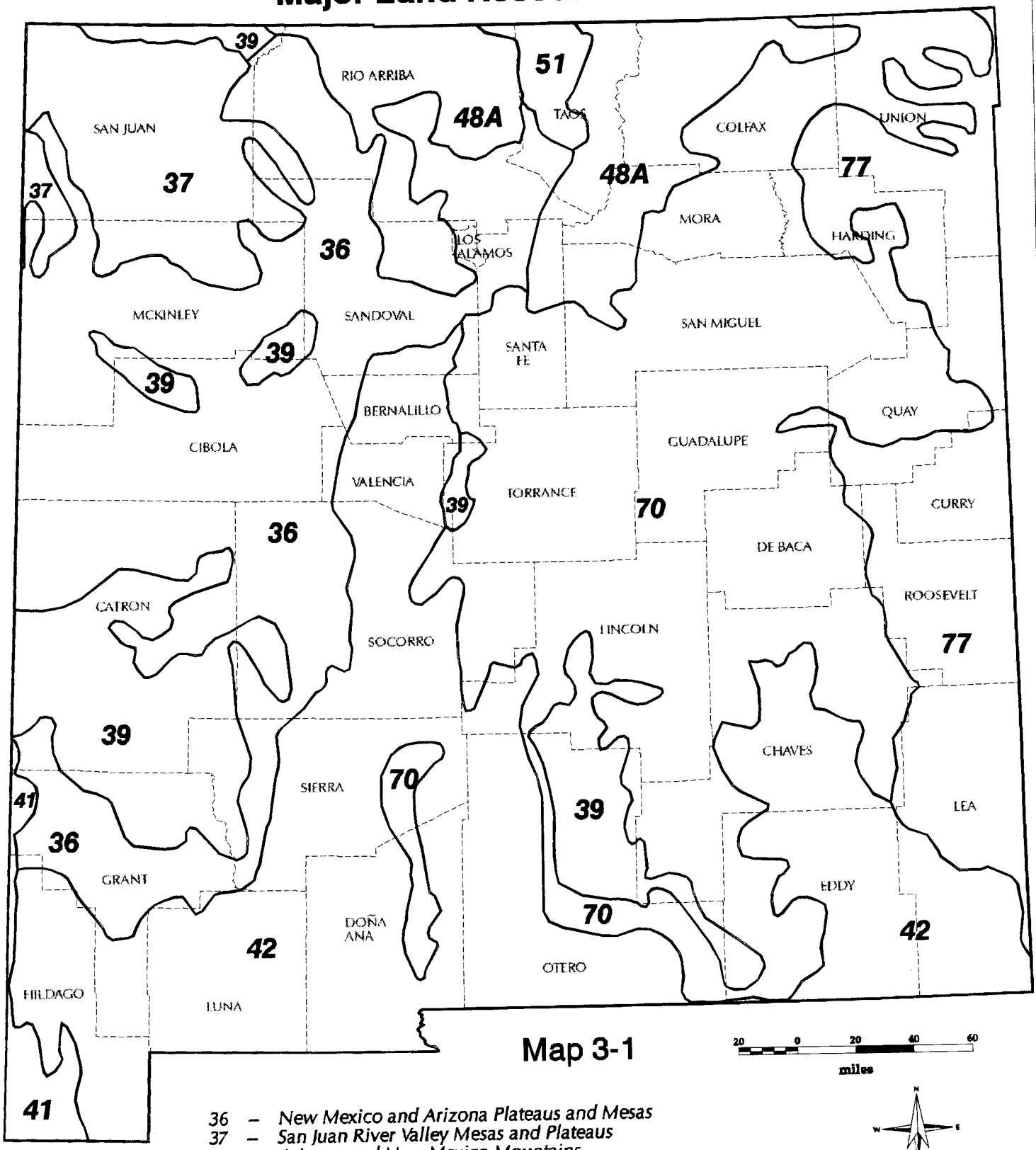
TABLE 3-1 ACRES AND PERCENT MLRA AND BIOMES ON PUBLIC LAND IN NEW MEXICO							
			Biomes				
MLRA Name	MLRA Code	MLRA Total Acres	Conifer Forest	Woodland	Grassland	Desert	Other
New Mexico and Arizona Plateaus and Mesas	**36**	2,619,000	10,000	1,262,800	1,191,800	116,800	37,900
	%	19	0.4	48	46	5	1
San Juan River Valley Mesas and Plateaus	**37**	786,000	0	72,700	586,000	110,600	16,500
	%	6	0	9	75	14	2
Arizona and New Mexico Mountains	**39**	325,000	1,400	228,900	89,500	3,200	1,700
	%	2	0.2	71	11	<1	<1
Southeastern Arizona Basin and Range	**41**	153,000	0	40,300	40,100	63,200	8,900
	%	1	0	26	26	41	6
Southern Desert Basins, Plains, and Mountains	**42**	6,677,000	100	836,000	2,571,600	2,998,500	270,600
	%	49	<1	13	43	50	5
Southern Rocky Mountains	**48A**	41,000	2,000	30,300	8,200	300	100
	%	<1	5	74	20	1	<1
High Intermountain Valleys	**51**	209,000	2,900	86,100	5,400	114,200	300
	%	2	1	41	3	55	<1
Pecos-Canadian Plains and Valleys	**70**	2,675,000	100	527,500	1,122,400	997,600	27,000
	%	20	<1	20	42	37	1
Southern High Plains	**77**	10,000	0	3,400	6,000	100	200
	%	<1	0	35	62	1	3
Total		**13,495,000**	**16,500**	**3,088,100**	**5,621,000**	**4,404,400**	**363,200**
Total %		**100**	**0.1**	**23**	**42**	**33**	**3**

Source: BLM GIS analysis of USDA NRCS MLRA boundaries and vegetation data derived from the U.S. Geological Survey BRD New Mexico Gap Analysis Project

TABLE 3-2 MAJOR LAND RESOURCE AREAS - LAND ACREAGE IN NEW MEXICO			
MLRA - Number and Name	**Total for New Mexico**	**Public Land Acres**	**Percent of MLRA in New Mexico that is Public Land**
36 - New Mexico and Arizona Plateaus and Mesas	14,621,000	2,619,000	18
37 - San Juan River Valley Mesas and Plateaus	3,966,000	786,000	20
39 - Arizona and New Mexico Mountains	6,299,000	325,000	5
41 - Southeastern Arizona Basin and Range	778,000	153,000	20
42 - Southern Desertic Basins, Plains, and Mountains	17,654,000	6,677,000	38
48A - Southern Rocky Mountains	5,366,000	41,000	1
51 - High Intermountain Valleys	544,000	209,000	38
70 - Pecos-Canadian Plains and Valleys	20,998,000	2,675,000	13
77 - Southern High Plains	7,544,000	10,000	<1
MLRA Total (rounded)	**77,770,000**	**13,500,000**	**17**

Source: BLM GIS analysis of USDA NRCS MLRA boundaries and public land status records

New Mexico
Major Land Resource Areas



Map 3-1

20 0 20 40 60
miles

36 – *New Mexico and Arizona Plateaus and Mesas*
37 – *San Juan River Valley Mesas and Plateaus*
39 – *Arizona and New Mexico Mountains*
41 – *Southeastern Arizona Basin and Range*
42 – *Southern Desertic Basins, Plains, and Mountains*
48A – *Southern Rocky Mountains*
51 – *High Intermountain Valleys*
70 – *Pecos-Canadian Plains and Valleys*
77 – *Southern High Plains*

Produced by the New Mexico State Office Geographic Sciences Team, Bureau of Land Management, September 02, 1998

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Land Use: This MLRA occurs on approximately 2,619,000 acres of public land in New Mexico.

Elevation and topography: Elevation ranges from 1,500 to 2,300 meters, but a few isolated mountains are higher than 2,600 meters. These plateaus and mesas have gentle slopes, but precipitous slopes are along valley walls and edges of the mesas.

Climate: The average annual precipitation is between 250 and 325 millimeters (mm) in most of the area but higher elevations receive an average of 375 mm. About two-thirds of the precipitation falls from midsummer to early autumn. The average annual temperature ranges from 9 to 12 degrees celsius (^{0}C), and the average freeze-free period is between 120 to 180 days.

Water: Water is scarce because of the low precipitation and sparse streamflow. A small amount of water is available for irrigation along the major streams that flow into the area from surrounding mountains. Navajo Lake is near the northern border.

Soils: Most of the soils are Argids and Orthents. They are well drained and fine textured to medium textured and have a mesic temperature regime, an aridic moisture regime, and mixed mineralogy.

Potential natural vegetation: Most of this area supports grassland vegetation. Indian ricegrass, blue grama, dropseed, and galleta are the major species. Alkali sacaton, fourwing saltbush, winterfat, and rabbitbrush grow in the valleys between mesas. Pinon-juniper woodland occur at the higher elevations and also on shallow soils and escarpments. The understory includes western wheatgrass, galleta, sideoats grama and, in some places, big sagebrush.

Photo 3-2

BLM Estimate of existing vegetation: Existing vegetation within this MLRA currently comprises of less than 1 percent conifer forest, 48 percent woodland, 46 percent grassland (primarily Great Basin grassland types), and 5 percent desert (dominated by Great Basin desert types). It is believed that desert has replaced some of the area formerly occupied by grassland due to past land use practices (Dick-Peddie 1993, McClaran and VanDevender 1995).

37-San Juan River Valley Mesas and Plateaus

Photo 3-3

Land use: This MLRA occurs on approximately 786,000 acres of public land in New Mexico.

Elevation and topography: Elevation ranges from 1,500 to 2,000 meters. Gently sloping broad valleys and plains are bordered by deeply dissected bands of steep slopes and sharp local relief. Margins of mesas and a few isolated low mountain ranges are also steeply sloping.

Climate: The average annual precipitation ranges from 175 to 250 mm. About one-half of the precipitation falls from midsummer to early autumn. Average annual temperature 10 and 12^{0}C, and the average freeze-free period is between 140 and 165 days.

Water: The low precipitation and intermittent streamflow provide a small amount of water for agriculture. A few major streams supply water for irrigation. Water from Navajo Lake is to be used for an irrigation project planned for the area. Ground water is scarce, of poor quality, and mostly untapped.

Soils: Most of the soils are Orthents. They are well drained and medium textured and have a mesic temperature regime, aridic moisture regime, and mixed mineralogy.

Potential natural vegetation: This area supports desert shrub vegetation. Indian ricegrass, big sagebrush, fourwing saltbush, and galleta are major species. Shadscale, greasewood, alkali sacaton, and fourwing saltbush occur on the bottom lands. Pinon-juniper woodland, along with mountain mahogany, western wheatgrass, and galleta occur at higher elevations. Most of the western part of the area is grassland on which Indian ricegrass, alkali sacaton, and sand dropseed are dominant.

Photo 3-4

BLM Estimate of existing vegetation: Existing vegetation within this MLRA is approximately 9 percent woodland, 75 percent grassland and 14 percent desert. The grassland and desert types are those of the Great Basin flora. It is believed that desert has replaced some of the area formerly occupied by grassland due to past land use practices (Dick-Peddie 1993, McClaran and VanDevender 1995).

39-Arizona and New Mexico Mountains

Land use: This MLRA occurs on approximately 325,000 acres of public land in New Mexico.

Elevation and topography: In most places, elevation ranges from 1,400 to 2,400 meters, with a maximum height of 3800 meters. This area is mostly very hilly and mountainous, but an upland plateau is dissected by many deep canyons.

Climate: The average annual precipitation ranges 275 to 900 mm, increasing with elevation. The average annual temperature is between 5 and 15^{0}C. In timbered areas at higher elevations the average is 7^{0}C, and at lower elevations it is 10^{0}C. The average freeze-free period ranges from less than 70 days at higher elevations to 170 days at lower elevations, averaging about 115 days.

Photo 3-5

Water: This MLRA supplies water for much of the adjoining irrigated areas. Because more than one-half of the annual precipitation occurs in winter, there is a general deficiency of moisture during the growing season. Several of the larger streams and a few of their larger tributaries maintain a yearlong flow. Much of this water is stored in reservoirs near or below the southern edge of the area and is used for irrigation and municipal water supplies. Small natural and artificial lakes at higher elevations are used for fishing and other recreation. Annual runoff into all reservoirs is highly variable, and most of the smaller lakes and reservoirs are dry in some years. Ground water is limited and usually occurs at great depth.

Soils: The dominant soils are Borolls, Boralfs, Ustolls, Ustalfs, Orthents, and Orthids. They have a cryic, frigid, or mesic temperature regime, depending mainly on elevation.

Potential natural vegetation: This area supports alpine vegetation, conifer forests, chaparral, and grasses because of the broad elevation range. Such cushion plants as moss campion, kobresia, alpine timothy, and many low-growing forbs grow above timberline. Spruce-fir woodland characterizes the area below timberline. Aspen grows on sites that have not been

disturbed by past fires. The under-story includes Thurber fescue, brome, bluegrasses, mountain muhly, Arizona fescue, lupine, aspen peavine, penstemons, and daisies. The major part of the area is a vast ponderosa pine forest. Common understory plants include bromes, Junegrass, pine dropseed, wheatgrasses, mountain muhly, blue grama, sedges, and snowberry. Pinon-juniper woodland is at an elevation below 2,100 meters. The understory includes blue grama, tobosa, sideoats grama, and western wheatgrass. Below an elevation of about 1,800 meters, turbinella oak, mountain mahogany, hollyleaf buckthorn, ceanothus, and manzanita grow along with sideoats grama, blue grama, Junegrass, longtongue muttongrass, squirreltail, and bluegrasses.

Photo 3-6

BLM Estimate of existing vegetation: Existing vegetation within this MLRA comprises less than 1 percent conifer forest, 71 percent woodland, and 11 percent grassland (primarily Plains and Great Basin grassland types) and less than 1 percent desert. The conifer type is composed mainly of lower elevation ponderosa pine forest. It is expected that the woodland biome has replaced portions of the grassland biome due to past land use practices (Dick-Peddie 1993, McClaran and VanDevender 1995).

41-Southeastern Arizona Basin and Range

Land use: This MLRA occurs on approximately 153,000 acres of public land in New Mexico. Most of this area is used for grazing.

Elevation and topography: Elevation ranges from 800 to 1,400 meters in most places and from 1,500 meters to 1,800 meters in the mountains. On some peaks, however, elevation is 2,700 meters. This area consists of southeast-northwest-trending mountain ranges with relatively smooth valleys separating the mountains.

Photo 3-7

Climate: The average annual precipitation ranges from 275 to 375 mm, but as much as 900 mm at the higher elevations. More than half of the precipitation falls during July, August, and September. Snow falls occasionally in winter. The average annual temperature ranges from 13 to 17^{0}C, and the average freeze-free period lasts between 150 and 250 days.

Water: None of the streams flow continuously, although they may have water in them for several months each year. There are no lakes or reservoirs of consequence. Water for irrigation generally is obtained by pumping ground water, and there has been a noticeable decrease in the ground water level in the last several years. Water quality is generally satisfactory.

Soils: The dominant soils are Orthents, Ustolls, Argids, and Fluvents. They have a thermic temperature regime and mostly aridic moisture regime.

Potential natural vegetation: This area supports forest, savanna, and desert shrub vegetation. Pine-oak woodlands are at higher elevations. Ponderosa pine, Douglas-fir, live oak, New Mexico locust, Mexican piñon, buckbrush, and manzanita grow with an understory of muhlys, bluegrasses, sedges, pine dropseed, and squirreltail. Evergreen woodland savannas occur at intermediate elevations. Mexican blue oak, Emory oak, and turbinella oak are dominant species. Cone beardgrass, sideoats grama, blue grama, Texas bluestem, plains lovegrass, sprucetop grama, threeawns, and needlegrass characterize the

under-story. Whitethorn, soaptree yucca, fourwing saltbush, mesquite, and ocotillo grow on drier soils at lower elevations. The understory consists of Rothrock grama, black grama, alkali sacaton, curly mesquite, plains bristlegrass, bush muhly, and lemongrass.

Photo 3-8

BLM Estimate of existing vegetation: Existing vegetation within this MLRA is approximately 26

Photo 3-9

percent woodland, 26 percent grassland, and 41 percent desert. This area is primarily representative of the Madrean vegetation that just enters the United States from Mexico, in southern Hidalgo County. This area has a high number of vegetation types and plant species found nowhere else in New Mexico.

42-Southern Desertic Basins, Plains, and Mountains

Land use: This MLRA occurs on approximately 6,677,000 acres of public land in New Mexico.

Elevation and topography: Elevation ranges from 800 to 1,500 meters in basins and valleys, but reaches more than 2,600 meters in the mountains. Broad desert basins and valleys are bordered by gently sloping to strongly sloping fans and terraces. Steep north-south-trending mountain ranges and many small mesas occur in the western portion of the MLRA.

Climate: The average annual precipitation ranges from 200 to 325 mm. Maximum precipitation is from midspring to midautumn. The average annual temperature is between l3 and 18^0C. An average freeze-free period of 200 to 240 days occurs in most of the area but only 180 days are freeze-free in the northern ends of the Pecos and Rio Grande valleys.

Water: The Rio Grande and Pecos Rivers and a few of their larger tributaries are the only perennial streams. Water for irrigation generally is obtained from these rivers or from wells. Ground water in deep valley fill provides water for domestic use and livestock, and in places for some irrigation.

Soils: Most of the soils are Argids and Orthids. They are well drained and medium textured and have a thermic temperature regime, aridic moisture regime, and mixed or carbonatic mineralogy.

Potential natural vegetation: This area supports desert grass-shrub vegetation. Giant dropseed and mesa dropseed, along with scattered shrubs such as sand sagebrush and yuccas, grow on the sandier soils. Creosotebush, tarbush, catclaw, and javalinabush are on gravelly, calcareous foot slopes. Giant sacaton, vine-mesquite, desert willow, brickellbush, and mesquite grow in drainageways and depressions. Juniper, piñon, scattered ponderosa pine, and Douglas-fir occur on upper mountain slopes.

Photo 3-10

BLM Estimate of existing vegetation: Existing vegetation within this MLRA comprised less than 1 percent conifer forest, 13 percent woodland, 43 percent grassland (dominated by Chihuahuan Desert grassland), and 50 percent desert (dominated by Chihuahuan Desert types). It is projected that desert has replaced some of the area formerly occupied by grassland due to past land use practices (Dick-Peddie 1993, McClaran and VanDevender 1995).

48A-Southern Rocky Mountains

Photo 3-11

Land use: This MLRA occurs on approximately 41,000 acres of public land in New Mexico.

Elevation and topography: Elevation ranges from 2,300 to 4,300 meters. These strongly sloping to precipitous mountains are dissected by many narrow stream valleys with steep gradients. In places, the upper mountain slopes and crests are covered by snowfields and glaciers. High plateaus and steep-walled canyons are fairly common, especially in the west.

Climate: The average annual precipitation is generally between 375 and 750 mm, but as much as 1,025 mm or more can fall on some of the higher mountains. Most of the precipitation falls in winter as snow. The average annual temperature ranges from 0 to 7^0C, and the average freeze-free period is generally less than 70 days.

Water: Water from the streams and lakes is abundant, and ground water is plentiful. The lower valleys depend on streamflow from this area for irrigation water.

Soils: Most of the soils are Boralfs. They are moderately deep, stony and very stony, and medium textured.

Potential natural vegetation: This area supports forests on upper slopes, alpine tundra above timber-line, and shrub-grass vegetation at lower elevations. Grasses, sagebrush, and other shrubs grow on the lower slopes and in valleys. Lodgepole pine, aspen, Douglas fir, and ponderosa pine are major trees of the lower forest. Engelmann spruce, subalpine fir, white fir, and limber pine intermingled with stands of aspen are typical on the mountain slopes. Willow, alder, and birch trees grow along streams. The timberline zone is characterized by stunted and wind-twisted limber pine, bristlecone pine, Engelmann spruce, and subalpine fir. Alpine grasses, herbaceous plants, and shrubs constitute the treeless alpine tundra.

Photo 3-12

BLM Estimate of existing vegetation: Existing vegetation within this MLRA is approximately 5 percent conifer forest, 74 percent woodland, 20 percent grassland, and 1 percent desert. The BLM portions of this MLRA occur on the lower slopes of the mountains. The vegetation in these areas is woodland.

51-High Intermountain Valleys

Land use: This MLRA occurs on approximately 209,000 acres of public land in New Mexico.

Elevation and topography: Elevation ranges from 2,100 to 2,700 meters. Much of the area consists of nearly level to gently sloping old valley fill. Gently sloping to steep hills underlain by basalt are extensive in the south. Local relief is slight except in the south, where it is as much as 100 meters.

Climate: The average annual precipitation ranges from 150 to 500 mm, increasing from north to south. Most of the precipitation falls during the growing season. The average annual temperature is between 4 to 10^0C, and the average freeze-free period ranges from 100 to 140 days.

Water: The low precipitation in the north supports

Photo 3-13

only a sparse cover of range plants, but rainfall in the south is adequate for a good cover of grass and

Photo 3-14

sagebrush. Irrigation water is provided by the Rio Grande and small reservoirs on intermittent streams flowing into the area from surrounding mountains. The Chama River is an important water source in the south. Wells that tap ground water in the deep valley fill are also an important source of water for irrigation and domestic use. Salinity is a problem in much of the area.

Soils: Most of the soils are Argids, which are deep and moderately deep and coarse textured to medium textured. They have an aridic moisture regime, frigid temperature regime, and mixed mineralogy.

Potential natural vegetation: This area supports desert shrub-grassland vegetation. Greasewood, rabbitbrush, fourwing saltbush, saltgrass, alkali sacaton, wheatgrasses, sedges, and rushes are common at the lower elevations. Piñon-juniper, Indian ricegrass, blue grama, needle and thread, wheatgrasses, and bluegrasses grow at higher elevations. Narrowleaf cottonwood grows along the major streams.

BLM Estimate of existing vegetation: Existing vegetation within this MLRA is approximately 1 percent conifer forest, 41 percent woodland, 3 percent grassland, and 55 percent desert (primarily Great Basin desert types). It is likely that both woodland and desert have encroached into grassland areas due to past land use practices.

70-Pecos-Canadian Plains and Valleys

Photo 3-15

Land use: This MLRA occurs on approximately 2,675,000 acres of public land in New Mexico. Cattle and sheep grazing is the principal enterprise. Eastern slopes of the high mesas in the north are covered by forest vegetation, but the total forested area is small.

Elevation and topography: Elevation ranges from 1,200 to 2,100 meters, increasing gradually from southeast to northwest, but reaches 2,400 meters on a few mesas and mountains. Most of these dissected high plains are gently sloping to rolling, but bands of steep slopes and rough broken land border the stream valleys. A few isolated mountains, mesas, and canyon walls have steep to very steep slopes. Valley floors are mostly narrow and cut by stream channels.

Climate: The average annual precipitation is between 300 and 400 mm, but it fluctuates widely from year to year. Maximum precipitation is from late spring to early autumn. The average annual temperature ranges from 10 to 16^{0}C, and the average freeze-free period is between 135 to 200 days, decreasing from southeast to northwest.

Water: Water is scarce throughout the area because of the low and erratic precipitation and the few perennial streams. Ground water in deep sand and gravel in the north and from limestone in the southern two-thirds of the area provides water for domestic use and for livestock, and locally it provides water for irrigation. Ground water is scarce in areas where shale and sandstone are near the surface.

Soils: Most of the soils are Orthids, Argids, and Ustolls. They are well drained and moderately fine textured to moderately coarse textured and have mixed mineralogy. In the north and west, these soils have a mesic temperature regime and in the south and east a thermic temperature regime. They have an ustic or aridic moisture regime.

Potential natural vegetation: This area supports plains grassland vegetation that is dominated by short and mid-grasses. Blue grama is the dominant species. Western wheatgrass is the associated species in the northern part of the area, while lesser amounts of blue grama in association with black grama, galleta, New Mexico feathergrass, and a variety of shrubs, halt shrubs, and forbs characterize the southern part. Scattered juniper and piñon with an understory of sideoats grama, bottlebrush squirreltail, and western wheatgrass grow on shallow soils and in escarpments. Ponderosa pine grows on north and east slopes of the high mesas.

Photo 3-16

BLM Estimate of existing vegetation: Existing vegetation within this MLRA is made up of less than 1 percent conifer forest, 20 percent woodland, 42 percent grassland (Great Plains grassland types), and 37 percent desert. It is likely that both woodland and desert have encroached into grassland areas due to past land use practices. In addition, a large percentage of the woodland biome in this MLRA is dominated by shinnery oak which has dominated Great Plains mid- and tall grass types due to past land use practices.

77-Southern High Plains

Land use: This MLRA occurs on approximately 10,000 acres of public land in New Mexico.

Photo 3-17

Elevation and topography: Elevation ranges from 800 to 2,000 meters, increasing gradually from southeast to northwest. These smooth high plains are gently sloping, but along the major rivers, breaks are very steep. The deep sand in the southwest has an irregular dune topography.

Climate: The average annual precipitation is between 375 and 550 mm, but it fluctuates widely from year to year. Maximum precipitation is from late spring through autumn. The low precipitation in winter is mainly snow. The average annual temperature ranges from 13 to 17^{0}C, and the average freeze-free period ranges from 130 to 220 days, increasing from north to south and from west to east.

Water: The moderately low and erratic precipitation serves as the source of water for dry-farmed crops and range. Perennial streams are few; they fluctuate widely in flow from year to year and are minimally used for irrigation. Sand and gravel throughout the central and northern parts of the area yield an abundance of ground water. Irrigation water is obtained from wells, but in the central and southern parts withdrawals

exceed recharge, and the water table is gradually declining. Some areas formerly irrigated are now dry-farmed.

Soils: Most of the soils are Ustolls and Ustalfs. They are deep, fine, and medium textured and coarse textured. These soils have a mesic or thermic temperature regime, ustic moisture regime, and mixed or carbonatic mineralogy.

Potential natural vegetation: This area supports a short grass community characterized by blue grama and buffalograss. Mid-grasses such as sideoats grama grow on the more open soils and breaks. Tall grasses such as sand bluestem, little bluestem, and Indiangrass grow mixed with shinnery oak and sand sagebrush on

Photo 3-18

the sandy soils. A wide range of perennial forbs grow on the sandier soils and are characterized by dotted gayfeather, pitchersage, sagewort, bush sunflower, and daleas.

BLM Estimate of existing vegetation: Existing vegetation within this MLRA is approximately 35 percent woodland, 62 grassland, and about 1 percent desert. A large portion of the woodland biome in this MLRA is dominated by shinnery oak which has dominated Great Plains mid- and tall grass types due to past land use practices.

VEGETATION

BLM Management and Ecological Status of the Uplands

Ecological status of vegetative communities on public lands in New Mexico has been classified as 1 percent potential natural community (PNC), 35 percent late seral, 46 percent mid seral, 14 percent early seral, and 3 percent unclassified (USDI, BLM, 1996 - *Public Land Statistics*.) Trend on public lands was classified as 41 percent in an upward trend, 55 percent in a static trend, and 4 percent in a downward trend. (USDI, BLM 1995 - *National Range Inventory Report*). These conditions are reflected in the MLRA descriptions above. In addition, these conditions are indicative of, at least in part, ongoing BLM livestock and vegetation management efforts. McCormick and Galt (1993) found, in analysis of vegetation condition and trend studies conducted within the BLM's Las Cruces Field Office and repeated every 10 years since the 1950s, that both ecological condition and trend have steadily increased since then. Their data showed that perennial plant cover increased from 14 percent to 35 percent, bare ground decreased from 72 percent to 24 percent, and litter increased from 15 percent to 28 percent. In addition, 58 percent of the study sites improved one or more range condition classes. Thirty-nine percent of the study sites showed no change in range condition, and of these, half were in fair and half were in good condition. During the same time period total livestock numbers increased by 22 percent within the six counties encompassed by the Field Office. The improvement to can be attributed to management activities and increased precipitation in recent years.

BLM range management activities are primarily directed at manipulation of cattle stocking rates and construction of range improvements such as fencing and water developments to better distribute grazing pressure. In addition, BLM undertakes direct vegetation manipulation projects (primarily using herbicides) to restore grasslands that have been dominated by shrub species. For example, the average annual management activities of the BLM New Mexico Rangeland Management Program in a four year period from fiscal year 1989 to fiscal year 1992 included: 20,500 acres of brush control, 100 acres of seedings, 300 acres of soil stabilization, 6 water detention/diversion structures containing a total of 3,200 cubic yards, 45 pipelines totaling 52 miles in length, 15 reservoirs totalling 18,556 cubic yards of storage, 3 spring developments, 1 water catchment storing 20,000 gallons of rain water, 8 wells, 45,135 gallons of water storage and drinking facilities, and 71 miles of fence (USDI, BLM 1989, 1990, 1991, 1992 - *Public Land Statistics*) Table 3-3 depicts the existing distribution of vegetation management effort by MLRA. It shows that most of the management effort on public lands is directed at MLRAs 36, 42, and 70. These MLRAs encompass 78 percent of the public land acreage in New Mexico, but also contain the bulk of the desert areas of New Mexico where a large amount of the early- and mid-seral vegetation occurs.

Riparian Vegetation

Riparian areas on public land in New Mexico are generally characterized by low- and mid- elevation riparian broad-leaf deciduous forest types. Various cottonwood and willow species characterize the overstory in areas where the riparian vegetative community is in relatively good condition. Various grasses, and grass-like plants (sedges, bullrush, scouring rush) compose the understory. Manageability of these areas is high, and successful, fast results can be expected from riparian management activities. BLM estimates that 19,600 acres of public land are occupied by saltcedar (BLM, Western Weed Team Memorandum, 1997). In areas where saltcedar dominates, manageability is low. Saltcedar is difficult and expensive to remove, due to the need for removal by hand or by use of heavy equipment, followed by the use of herbicides and then planting of native tree species.

Most running water (lotic) riparian systems occurring on public land within New Mexico have been inventoried consistent with BLM procedures for rating riparian functional condition (USDI, BLM 1995). However, lakes, ponds, and playas (lentic wetland systems) have not all been inventoried. Riparian condition is rated as one of four categories: proper functioning condition, functioning at risk, nonfunctional, or not determined (see the Glossary for full definitions of these terms). Under this rating system it should be noted that a stream reach can reach proper functioning condition at a mid-seral ecologic state, long before reaching late seral or climax condition.

When inventoried, each spring or stream is divided into segments or reaches that have similar physical and biologic characteristics. For example a steep, narrow boulder strewn reach with New Mexico alders is separated from a wide, meandering gravelly reach with Goodding willows and cottonwoods. Functional condition of each segment is rated (based upon physical and biologic factors existing in that particular segment) against the management capability of that segment on a standardized score card. Condition is not rated totally against biotic potential or climax vegetation. In many cases, management problems occurring upstream or on uplands on other than public land limit the manageability of a particular segment. These factors are taken into account when a segment is rated. With regard to this situation, BLM commonly manages only a very small percentage of a given stream and its upland watershed.

Based on existing inventory data, lotic riparian areas on public land in New Mexico total 427 miles, containing 13,285 acres of riparian habitat located in 244 stream segments (Table 3-4). Statewide there are 38 stream segments in proper functioning condition, 116 segments are functional at risk, 38 segments are not functional, and 52 have not been inventoried. Of the total areas, 160 segments are grazed and 84 segments are excluded from grazing. Of the grazed areas, 14 are in proper functioning condition, 85 are functional at risk, 31 are not functional, and 30 have not been inventoried. Of the excluded areas, 24 are in proper functioning condition, 31 are functional at risk, 7 are not functional, and 22 have not been inventoried. Table 3-5 depicts the current functional condition rating of riparian segments currently not meeting the standards for each alternative. The following assumptions were made to determine which riparian segments currently don't meet the proposed and alternative standards:

> RAC and County Alternatives - Segments in Not Functional condition and Functional At Risk condition with a Not Apparent or Downward trend that do not meet the proposed Standards.
>
> No Action and Fallback Alternatives - Segments in Not Functional condition and Functional At Risk condition that do not meet the proposed Standards.

As with upland vegetation management activities, BLM has been steadily working on improving riparian conditions. While much work is yet to be done, BLM is implementing 62 Activity Plans (on-the-ground management plans) with specific riparian management objectives. Projects implemented through these plans include projects such as construction of livestock exclusion fences (107 miles of stream on public land have been excluded from grazing to date),

TABLE 3-3
STANDARDS AND GUIDELINES - NUMBERS OF ALLOTMENT MANAGEMENT PLANS (AMPS) AND OTHER APPLICABLE LIVESTOCK ACTIVITY PLANS (LAPS) AND OF BRUSH CONTROL PROJECTS SINCE 1987 BY MLRA.

MLRA NAME	MLRA CODE	FARMINGTON		ALBUQUERQUE		TAOS		ROSWELL		CARLSBAD		SOCORRO		**LAS CRUCES**		**TOTALS**	
		AMPS LAPS	BRUSH CNTL	AMPS LAPS	BRUSH CNTL	AMPS LAPS	BRUSH CNTL	AMPS LAPS	BRUSH CNTL	AMPS LAPS	BRUSH CNTL	AMPS LAPS	BRUSH CNTL	**AMPS LAPS**	**BRUSH CNTL**	**AMPS LAPS**	**BRUSH CNTL**
NEW MEXICO AND ARIZONA PLATEAUS AND MESAS	**36**	**7**	**22**	**7**	**27**	**8**	**3**					**36**	**2**	**6**	**0**	**64**	**54**
SAN JUAN RIVER VALLEY MESAS AND PLATEAUS	**37**	**9**	**33**													**9**	**33**
ARIZONA AND NEW MEXICO MTNS	**39**													**1**	**0**	**1**	**0**
SOUTHEASTERN ARIZONA BASIN AND RANGE	**41**													**1**	**1**	**1**	**1**
SOUTHERN DESERT BASINS, PLAINS, AND MTNS	**42**							**42**	**17**	**15**	**36**	**23**	**17**	**52**	**41**	**135**	**111**
SOUTHERN ROCKY MTNS	**48A**					**3**	**0**									**3**	**0**
HIGH INTERMOUNTAIN VALLEYS	**51**					**19**	**7**									**19**	**7**
PECOS-CANADIAN PLAINS AND VALLEYS	**70**							**38**	**14**	**8**	**6**	**3**	**1**	**9**	**5**	**58**	**26**
SOUTHERN HIGH PLAINS	**77**															**0**	**0**
TOTAL		**16**	**55**	**7**	**27**	**30**	**10**	**80**	**31**	**27**	**42**	**62**	**20**	**69**	**47**	**290**	**232**

SOURCE: UNPUBLISHED BLM FIELD OFFICE RECORDS [NOTE: NUMBERS OF PLANS INCLUDE ANY NRCS THAT ARE IN EFFECT ON PUBLIC LAND.]

Table 3-4 Riparian Conditions by Grazing Status				
CONDITION RATING	**GRAZING STATUS**	**MILES**	**ACRES**	**NUMBER OF RIPARIAN SEGMENTS**
PROPER FUNCTIONING CONDITION	EXCLUDED	106	2750	24
FUNCTIONAL AT RISK	EXCLUDED	47	949	31
NOT FUNCTIONAL	EXCLUDED	21	513	7
NOT DETERMINED	EXCLUDED	9	330	22
TOTAL EXCLUDED		**183**	**4542**	**84**
PROPER FUNCTIONING CONDITION	GRAZED	9	151	14
FUNCTIONAL AT RISK	GRAZED	156	6661	85
NOT FUNCTIONAL	GRAZED	71	1743	31
NOT DETERMINED	GRAZED	8	188	30
TOTAL GRAZED		**244**	**8743**	**160**
GRAND TOTAL		**427**	**13285**	**244**

Source: New Mexico BLM Riparian Database. Data obtained from BLM Functional Condition Inventories.

TABLE 3-5 EXISTING RIPARIAN CONDITION FOR SEGMENTS NOT MEETING THE STANDARDS FOR EACH ALTERNATIVE.		
ALTERNATIVE	**CONDITION**	**NUMBER OF AREAS**
NO ACTION	AREAS IN NOT FUNCTIONAL CONDITION AND FUNCTIONAL AT RISK CONDITION THAT DO NOT MEET THE STANDARDS FOR THIS ALTERNATIVE.	154
RAC	AREAS IN NOT FUNCTIONAL CONDITION AND FUNCTIONAL AT RISK CONDITION WITH A NOT APPARENT OR DOWNWARD TREND THAT DO NOT MEET THE STANDARDS FOR THIS ALTERNATIVE.	112
COUNTY	AREAS IN NOT FUNCTIONAL CONDITION AND FUNCTIONAL AT RISK CONDITION WITH A NOT APPARENT OR DOWNWARD TREND THAT DO NOT MEET THE STANDARDS FOR THIS ALTERNATIVE.	112
FALLBACK	AREAS IN NOT FUNCTIONAL CONDITION AND FUNCTIONAL AT RISK CONDITION THAT DO NOT MEET THE STANDARDS FOR THIS ALTERNATIVE.	154

Source: Analysis of data derived from New Mexico BLM Riparian Database

grazing management adjustments (in most FOs), riparian tree plantings in many FOs, fisheries work (particularly in the Taos FO portions of the Rio Grande), and saltcedar removal by hand and approved chemical treatments. A few multi-land owner efforts to improve watersheds and riparian areas are currently underway, such as the current efforts on the Rio Puerco in the Albuquerque FO and Laborcita Canyon in the Las Cruces FO.

Grazing systems have been devised that maintain or improve riparian health. For example, conservative grazing during the winter can provide some livestock use without damaging growing plants and avoiding heavy concentrations of livestock in the riparian area. However, riparian areas that are adversely affected, at least in part, by ongoing grazing are of continuing concern in managing public lands. BLM grazing is not the only problem affecting public land riparian areas. Because of the scattered pattern of public land riparian parcels, a great many other non-livestock grazing related factors affect them, including mineral developments, non-BLM grazing, wildlife, recreation activities, watershed problems on other lands, urban areas, channelization, and water diversions. Saltcedar infestations both on and off public lands also are major impediments to achieving proper functioning condition. Regardless of the problem or solution in a particular area, past experience has shown that improvement of public land riparian areas best occurs through multi-land owner cooperative efforts on entire watersheds.

SOILS

Most of the public lands in New Mexico are in a semi-arid environment with a range in parent material and vegetation that allows a wide variety of soils to develop. This variety affects the use and management of the public lands. Soil types on the public lands vary in depth, texture, color, structure, rock content, pH, nutrient
status, water holding capacity, and other characteristics. Soil properties influence and, in some instances, control the amount and kinds of vegetation or land use. Soil variation is often dramatic, changing over short distances, whether on forest, woodland, grassland, or riparian soil types. Upland soils are generally less resilient to impacts and slower to respond to management than are soils within riparian and wetland areas.

The NRCS has divided New Mexico into nine geographic areas (MLRAs) based on patterns of soil, climate, water resources, and land uses. Soil descriptions for each MLRA utilize the soil taxonomy to identify broad groups of soils. At the broadest or highest taxonomic grouping are soil orders. Four of the 11 soil orders, Alfisols, Aridisols, Entisols, and Mollisols, compose the majority of soils in New Mexico.

Alfisols are mineral soils that develop in cool moist regions, often under woodland and forest cover, and have a significant accumulation of clay in the subsurface. They are capable of storing and providing more moisture and nutrients for plants than less developed soils or soils at lower elevations. Alfisols are generally productive soils that respond well to changes in management. Alfisols are major components in MLRAs 39, 48A, and 77. Subdivisions of Alfisols in these MLRAs include Eutroboralfs, Cryoboralfs, Haplustalfs, and Paleustalfs.

Aridisols are mineral soils that have developed in dry regions. They are light colored; low in organic matter; and may have accumulations of sodium, soluble salts, and lime. Aridisols are common in the desert shrub, sagebrush, and piñon juniper vegetation communities. Without irrigation, Aridisols are not as productive as those that receive more precipitation and as such, they are slower to respond to changes in management. Aridisols are major components in MLRAs 36, 37, 39 (low elevation), 41, 42, 51, and 70. Subdivisions of Aridisols in these MLRAs include Haplargids, Calciorthids, Camborthids, Paleargids, Paliorthids, Gypsiorthids, and Natrargids.

Entisols are mineral soils that lack profile development (soil horizons) and are often called young soils. Entisols are formed in recently deposited material that typically is coarse textured and low in nutrients. They are often found in lower elevations, and arid and semiarid environments supporting desert shrub and sagebrush communities. However, they do occur in all MLRAs, especially along existing stream channels and floodplains. They generally respond slowly to changes in management. Entisols are major components in MLRAs 36, 37, 39, 41, 42, and 48A. Subdivisions of Entisols in these MLRAs include Torriorthents, Torrifluvents, Ustifluvents, Torrispamments, Ustorthents, and Cryorthents.

Mollisols are mineral soils that have thick, dark-colored surface horizons rich in organic matter. They are fertile and extend from the higher mountains to the prairie grasslands where they are most abundant. Mollisol soils support the plains grasslands, chapparral-mountain shrub, mountain and plateau grasslands, and coniferous-deciduous forest community types. Mollisols are the most productive soils and respond well to management changes. Mollisols are major components in MLRAs 39, 41, 48A, 70, and 77. Subdivisions of Mollisols in these MLRAs include Argiborolls, Cryborolls, Haplustolls, Argiustolls, Calciustolls, and Paleustalls.

Soil Erosion

Soil erosion is influenced by climate, topography, soil properties, soil condition, cover, and land use. Of all the factors, soil cover is most important (*USDI, BLM 1994 Rangeland Reform Draft EIS*). Cover and land use are the two factors that BLM can influence to control erosion. Cover intercepts precipitation, reducing raindrop impact, restricting overland flow, and allowing more infiltration and less runoff and erosion. Research indicates that cover values of 30 to 40 percent are the lowest needed to control sheet and rill erosion and that 20 percent is needed to prevent wind erosion *(USDI, BLM 1994 Rangeland Reform Draft EIS)*. The 30 to 40 percent minimum cover values are more pertinent to arid areas where cover is naturally sparse. Cover values of 85 percent are not uncommon in the plains grasslands (*USDI, BLM 1994 Rangeland Reform Draft EIS)*. Sufficient cover requires adequate vegetation (basal cover and foliar cover) and natural litter.

Natural litter is the uppermost sightly decayed layer of organic matter on the soil surface. It not only adds soil cover but it also adds to the overall soil health by improving soil structure, thus improving the ability of the soil to absorb water. Litter also supplies nutrients to the soil.

Rangelands are affected by all three types of water erosion - sheet-rill, gully, and streambank. Sheet-rill erosion is insidious because it generally goes unnoticed as it removes very small amounts of soil over broad areas. Conversely, gully and streambank erosion are far more noticeable. Many uplands, especially in the arid areas, have an arroyo (gully) network inscribed throughout, replacing what were once grass-covered swales. As a result, water flow patterns in arid areas have been altered, causing an increase in size and frequency of runoff events and sediment yield to local water sources. Arroyos lower water tables and alter soil moisture regimes over large areas. Some researchers have concluded that 75 percent of the erosion in desert systems is the result of arroyo and streambank erosion *(USDI, BLM, 1994 Rangeland Reform EIS).*

Arroyo evolution begins with initial headcutting, then passes into a down-cutting phase, followed by channel widening and then infilling and rebuilding the floodplain. "Data from several streams in New Mexico and the southwest show decreasing sediment yields without changing flows. The lower reaches of these streams show evidence of renewed floodplain building within the arroyo walls." (Gellis 1991.)

WATER

Statewide

The State of New Mexico estimates that New Mexico has approximately 111,000 miles of watercourses, of which 6,000 miles are perennial (New Mexico Water Quality Control Commission, [NMWQCC] 1998).

The following water discussion is summarized from NMWQCC 1998. Surface waters in NM include headwaters of three principal drainages of the U.S.: the San Juan and Colorado River Basins contribute to the Colorado River; the Arkansas-White-Red River Basins contributes to the Mississippi River; and the Rio Grande and Pecos River Basins contribute to the Gulf of Mexico. There are also streams which are within closed basins and drain internally. Total annual streamflow in new NM is over 5.7 million acre-feet, with precipitation within NM providing 3.3 million acre-feet. The remainder of the flow is primarily inflow from Colorado. Quality of surface water varies within the State. Water from the high mountains is generally excellent quality. As the water flows downstream many factors contribute to degradation of the water quality. These factors include evapotranspiration, evaporation, pollution loading from man's activities, and changes due to beneficial uses. Some basins are well known for their water quality problems, such as the San Juan with the high salt content in the rocks and soils, or the Rio

Puerco Basin with its fine textured valley fills that are high sediment producers.

The following hydrogeology discussion is summarized from NMWQCC 1998. The hydrogeology of NM is also variable and complex, thus quality and quantity of ground water varies by location. Sandstone, limestone, and unconsolidated sand and gravel (sedimentary deposits) are the most productive aquifers. Valley or basin fill are the most important aquifers in the State, especially for drinking water, and usually occur along drainageways. These aquifers are highly vulnerable to contamination from surface discharges because they are shallow. Maintenance of surface water quality is necessary to protect the ground water.

Water quality management in New Mexico has both State and Federal aspects. The State, through the NMWQCC and New Mexico Environment Department (NMED), establishes standards for ground water, lakes, and streams or segments of streams, assesses the quality of these water bodies, adopts regulations, and takes actions to protect and maintain water quality. The State also coordinates with the U.S. Environmental Protection Agency in implementing the Federal Water Pollution Control Act (33 U.S.C. 1288), popularly known as the Clean Water Act and other Federal acts which contain water quality protection provisions.

Programs and measures to control pollution in New Mexico include the following:

- Federal National Pollutant Discharge Elimination Program for point source discharges and the State certification process for permits issued under this program,
- State certification of Federal dredge-and-fill permits,
- Discharge plans required under the State ground water regulations,
- State review of Federal actions under the consistency provisions of the Federal Clean Water Act, and
- Agreements between NMED and Federal and other agencies to implement nonpoint source (NPS) pollution control measures.

Approximately 2,936 assessed river miles [in the State] are impaired for designated or attainable uses. Many of the identified stream reaches have more than a single threatened or impaired use. Use impairment is frequently due to several causal agents from several sources. Overall, twelve of the State's fifteen designated uses have been impaired by point or nonpoint sources of pollutants. All subcategories of both the coldwater and warmwater fishery uses, as well as the irrigation and irrigation storage, primary and secondary contact recreation, domestic water supply, fish culture, and livestock watering and wildlife habitat uses have been impaired. (NMWQCC 1998).

Nonpoint source pollution is directly related to land use practices on a broad geographical scale. In New Mexico, the principal sources of NPS pollution include agriculture, including, silviculture, resource extraction, hydromodification, recreation, road construction and maintenance, and on-site liquid waste disposal. These sources are responsible for more than 91 percent of the impairment to the State's surface water. Reduction in pollution delivery from these sources is controlled or prevented through the implementation of BMPs by the responsible party. New Mexico encourages the use of BMPs for the control of NPS pollutants through a combination of efforts including incentive programs, education and outreach activities. Statewide efforts to control or reduce the degree of water quality impairments utilize a combination of BMP techniques. (NMWQCC 1998).

Rangeland Agriculture

Of the NPS sources, grazing on rangelands accounts for 21.3 percent of the total NPS contribution to surface water quality impairments of the State. Grazing is a probable major source of pollutants which may contribute to water quality impairments on approximately 812 stream miles, and a minor source of pollutants which may contribute to water quality impairments on approximately 1,792 stream miles. (NMWQCC 1998).

The following discussion is taken from page 100 and 101 NMWQCC 1998.

> In New Mexico rangeland NPS pollution in the form of turbidity and siltation is often the product of natural conditions associated with arid land climates. Most of New Mexico receives 15 inches or less of annual precipitation on highly erodible soils. This precipitation typically arrives in July and August in the form of torrential downpours

following two to three months of little to no rainfall. Scarce vegetation in the form of grasses and forbs allows overland flows to strip soils from the surface.

Progress continues to be made in the area of grazing management as ranchers and State/Federal allotment permittees become increasingly aware of the ecological importance of riparian areas. Although many operators continue to feel threatened by the plethora of regulation surrounding water quality and riparian related species, many now recognize that what is good for riparian areas is also good for production. Grazing management trends point to multiple-pasture rest rotation grazing systems which often include special protection for riparian areas. This type of active management, whereby cattle are frequently moved from pasture to pasture, has proven to be a reliable path to success. Riparian and upland watershed conditions often exhibit rapid improvements under this type of system.

Another issue facing the ranching community is the ever-shrinking size of suitable grazing land due to an accelerated encroachment by woody species (pinon and juniper). This phenomenon is generally thought to be a direct result of the interrupted natural fire cycle which used to occur in the southwest United States. Some progressive ranchers have begun to reverse this trend by removing woody species and reintroducing fire into the ecosystem, the results of which have proven to be positive to both water quality and quantity. Most within the ranching community recognize that the long-term sustainability of the ranching in New Mexico depends on an environmentally sensitive and active management approach. In fact, many bear witness to the fact that their ranches are thriving under these types of systems. In the words of one such rancher, "...this environmentalism is making me money."

Efforts to reduce rangeland NPS pollution have focused on grazing practices instead of vegetation management. Years of livestock numbers reductions and implementation of grazing BMPs have had little to no effect on grazing lands NPS pollution. The recognition that a 90% reduction in livestock numbers has brought little to no improvement has prompted a reevaluation of the source of NPS pollution on grazing lands.

Fire suppression allowing woody plant species invasion is the primary cause of surface erosion in the woodland and lower elevation grasslands". In the ponderosa pine forests, fire suppression has fostered an increase in tree densities from 19 to 50 trees per acre to highs of 3000 trees per acre resulting in an average of 30% reduction of surface flows and restriction of infiltration to ground waters.

In the early 1980's, the Soil and Water Conservation Division promulgated BMPs designed to address the issues of woody invasion, diminishing grasses and forbs, reduction of surface flows and groundwater recharge. Federal and State land management agencies have not successfully implemented many of these BMPs.

The Soil and Water Conservation Commission and Districts have identified watershed restoration as the number one priority for New Mexico.

The following silviculture discussion was taken from page 101 of the NMWQCC 1998 Report:

> Areas on Forest Service Lands identified by the USFS as suitable for timber harvesting occupy roughly 10 per cent of the forested lands. Pre-1990 harvesting activities were disturbing about one half of one percent of those lands. BMPs were modified at that time to reduce impacts to water quality. Fire suppression on all Forest Service lands over the last 100 years has created conditions that favor large scale catastrophic wildfires and an average 30 per cent reduction of high quality water delivery.
>
> These reductions of water delivery from the watersheds has also contributed to exceedence of water quality standards in the lower reaches of New Mexico's rivers. As the flows of higher quality water is reduced, numeric concentrations of point and non point source pollutants increase.

The following is taken from pages 109 and 110 of the NMWQCC 1998 Report:

> New Mexico is fortunate in being able to demonstrate water quality improvements in specific watersheds. Since many of the State's high quality waters exist in areas managed by USFS, management changes and BMP implementation in many of these ares results in a rapid benefit even though the State does not always have the necessary data to establish statistical correlation between the implementation of BMPs and an improvement in water quality. In many instances, changes in management practices will not be immediately evident, due to slow vegetative growth rates and other ecological factors. Actual improvements within the water column may not be noticeable for years, and possibly even decades. Due to this "ecological lag time:, NMED is exploring the use of other indicators of improvement. NMED has begun to develop protocols for assessing sedimentation through the use of biological and geomorphological methodologies. NMED also recognizes the need for and plans to develop protocols for assessing riparian areas and how they influence water quality.

Public Land

Comparatively, the number of miles of riparian areas on public lands is small, only 433 (*USDI, BLM 1997 Public Land Statistics*). There are no estimates of the miles of ephemeral channels on public lands. Undoubtedly, many of the 433 miles of riparian areas on public lands have been impacted by grazing in the past. Of the 163 water quality-limited stream reaches identified by NMED (1998), approximately 46 have public lands within their watershed. Forty-two of these (91 percent) have grazing identified as one of the probable sources of pollutants.

Water quality can be improved. For example, riparian areas with lush vegetation contribute to improved water quality and removal of sediment as the water moves through, rebuilding floodplains and reducing erosion of streambanks. Riparian areas also act as a sponge to hold water in streambanks and release water slowly, increasing the amount of water available year-long.

Under the Clean Water Act and a Memorandum of Understanding with the NMED, BLM is the designated agency for water quality management on public lands and is responsible for the control and reduction of NPS pollution on these lands. NPS pollution can be directly related to land use practices, and sediment related pollutants are likely the most significant contribution from public land activities (NMWQCC, 1998). One of the key tools in reducing NPS pollution is the identification and application of best management practices (BMPs) to every activity with the potential to impact water quality. BMPs should be the best combination of structural and nonstructural measures working together to reduce or prevent water quality impairment.

It is BLM policy that project planning and implementation include site-specific BMPs to address NPS pollution concerns. This effort is coordinated with the State of New Mexico NPS Management Program outlined in (NMWQCC 1994). Examples of BMPs that have been used on public lands include the following:

- **Grazing** - grazing plans and systems, reducing livestock, redistributing livestock (fences, wells, salting, etc.), modifying grazing seasons, using rangeland treatments to improve condition (brush control, seeding, etc.) and modifying treatments to reduce soil disturbance

- **Roads and Rights-of-Way** - Minimizing soil disturbance, rerouting to avoid streams, stream armoring, stream crossings, controlling runon and runoff, and designing structures to withstand storms.

- **Recreation** - road closures, providing sanitary facilities

- **Riparian** - protecting areas, controlling saltcedar, plantings of desirable species

- **Oil and Gas** - closing and remediating pits, reseeding areas, building erosion control dams or berms, and avoiding leasing in sensitive areas

While the BMP terminology is relatively new, the concept is not. Nearly 50 years ago, BLM and other Federal agencies began restoring western landscapes, as demonstrated by the efforts undertaken since the 1950s in the Rio Puerco watershed to control erosion and sedimentation through reseeding of depleted

rangelands and construction of hundreds of erosion control dams, as well as adjustments to grazing management practices (*Rio Puerco Special Project Evaluation Report, 1972)*.

BLM implementation of BMPs is documented in a report produced by the EPA Region 6 entitled New Mexico Best Management Practices Study, July 30, 1998. The study looked at 20 randomly chosen BLM grazing sites and found 265 practices implemented on those sites which could be considered as BMPs.

GRAZING ADMINISTRATION

The current Rangeland Management Program can be more easily understood with some historical background of how it has developed, both successfully and with some setbacks, over the past century.

Rangelands were significantly changed around the turn of the century. Many areas that were previously grasslands were converted to brush lands. In the south, creosote and mesquite came to dominate the landscape while in the north, sagebrush and piñon/juniper trees became most common. "The explanations for vegetation change seem to be as numerous as the explainers themselves. Recent workers tend to view vegetation change as the result of several, factors, none of which can always be singled out as the most influential. Clearly, [historic] livestock grazing'...must bear justly the responsibility of a number of evils, but it has become a convenient scapegoat for a multitude of situations where the proper answer should be 'Nobody knows'"(Allred 1996).

Prior to 1934, the federal government did not control livestock grazing on public land. In 1934 the Taylor Grazing Act (TGA) was signed. It sought "to stop injury to the public grazing lands by preventing overgrazing and soil deterioration: to provide for their orderly use, improvement, and development; [and] to stabilize the livestock industry dependent upon the public range" (TGA 1934).

In the 1930s and 1940s the Division of Grazing, later the Grazing Service, later BLM, worked through the grazing advisory board, to identify where the public lands were, what had been the prior use by ranchers, what the range conditions were, and where range improvements were needed. Through this consultation, the Division was able to establish future grazing allotment boundaries, seasons of use, types of livestock and preference. Preference was identified in AUMs and was attached to base properties controlled by the various permittees/lessees. Permits and leases were then developed in concert with the preference, allotment boundaries, season of use, and kind of livestock. Where the land could not support the preference levels of use, a portion of the preference was placed in suspended nonuse and the permit or lease reflected the remaining portion as active use.

In the 1950s there was a significant drought. In New Mexico, the drought was perhaps second only to one that had occurred nearly 700 years earlier from 1275 to 1299. Many acres of grassland were thinned. Black grama losses were reported as high as 30 percent on conservatively grazed areas to 100 percent on ungrazed areas. In addition to the grass, shrubs and trees were lost (Allred 1996).

In the 1950s and 1960s the BLM worked to construct range improvements and treated the land to reduce erosion and help the land recover. In the mid-1960s BLM added grazing programs that would improve the range condition.

In the 1960s and 1970s large sagebrush and pinon-juniper chainings were completed in the northwestern part of the state to improve watershed conditions, wildlife habitat, and livestock forage. Slash piles were burned, and the chained areas often seeded to perennial grasses.

In the 1970s, the BLM began preparing EIS as part of the Rangeland Management Program. This usually included conducting rangeland surveys to project grazing capacity. Once the capacities were estimated and the EISs complete, the BLM started making livestock grazing adjustments.

In the 1980s, the BLM began using multiple-year monitoring to confirm or adjust grazing capacities. Usually an allotment was monitored for five-years and then the studies were evaluated. After evaluation, the allotment's capacity was adjusted to be consistent with the monitoring. In some cases the capacity was adjusted upward and in some cases it was adjusted downward. In most cases, the adjustments were incorporated through agreement between the permittee and BLM. In some cases, allotment plans were developed to incorporate land treatment and/or more intensive grazing management to achieve the management objectives.

In 1986 the *Public Land Statistics* reported that the following range conditions were present in New Mexico:

Excellent	1 percent
Good	24 percent
Fair	48 percent
Poor	23 percent
Unclassified	4 percent

Photo 3-19

By the 1990s, the BLM had ensured that most of the allotment stocking rates were consistent with the grazing capacities established by rangeland monitoring or surveys. There were exceptions, however; these often included low priority allotments such as small scattered tracts. Often, BLM does not regulate the actual grazing numbers on these tracts unless there are unusual circumstances.

By 1995, the BLM reported that only 4 percent of public lands in New Mexico showed a downward trend. (USDI, BLM 1995 - *National Range Inventory Report*) A combination of factors may have been responsible for the downward trend. First of all, many brush and tree species continued to increase. The loss of the fire cycle also appeared to be a major contributor. Although it may have been in part due to grazing animals removing the fine fuels, a major contributor was the BLM's past fire control program (Swetnam and Betancourt 1990).

In other cases, the problem may have been animal concentration. Some areas (due to topography, water, or vegetation) appeal to animals more than others. Although an allotment may be stocked properly, concentration areas continue to be grazed above optimum levels. The BLM is now focusing on solving these problems. For example, BLM's first priority is to ensure that riparian areas are properly functioning and management is not adversely affecting them.

Forty one percent of Public lands were showing an upward trend by 1995. (USDI, BLM 1995 - *National Range Inventory Report*) These acres may not meet the optimum condition today; however, current management practices will allow the land to achieve the objectives.

Fifty-five percent of public lands were showing a static trend by 1995 (USDI, BLM 1995 - *National Range Inventory Report*), meaning that the current condition has stabilized. This condition often exists where optimum conditions have been achieved, where the land is dominated by brush species, and at the lower seral stages. Where deep rooted brush species dominate, change comes very slowly, even under optimum management programs, unless the programs include brush and tree control. To improve these lands, BLM cooperates with individual ranchers to develop rangeland programs that include improved grazing distribution, grazing deferment, and brush control. Success has been made in thinning sagebrush with the herbicide Spike 20-P in northern New Mexico. As sagebrush was thinned there was increased herbaceous vegetation production resulting in increased ground cover. This increased production and ground cover resulted in watershed protection and erosion reduction as well as wildlife and livestock forage benefits.

By 1996, the BLM changed its range condition reporting categories; however, a direct comparison can be made between the new and old categories. The following figures that were reported in the *Public Land Statistics* 1996 show a rapid improvement since 1986:

PNC (excellent)	1 percent
Late Seral (good)	35 percent
Mid Seral (fair)	46 percent
Early Seral (poor)	14 percent
Unclassified	3 percent

(* Total does not equal 100 percent due to rounding)

Photo3-20

Although percentages of the PNC and mid-seral ecological stages remained virtually unchanged, the late seral increased by 45.8 percent and early seral was reduced by 39.1 percent. The PNC condition is not always the desired condition for the public lands, since it may not always provide the best mix of vegetation for desired biological and social values (Council of Agriculture Science and Technology 1996). Maximum vegetation diversity, often the most desirable objective for livestock and some species of wildlife, occurs frequently not at climax, but in the mid-to late seral stages (USDI, BLM, 1990-*State of the Public Rangelands*). This is because the mix of plants for use on the area may be suboptimal and other stages often provide for more diversity (Council of Agriculture Science and Technology, 1996).

Current Grazing Management

Today the BLM administers livestock grazing on federal land under the authority of Sections 3 and 15 of the TGA of 1934. Other laws governing livestock grazing on federal land include the Bankhead-Jones Farm and Tenant Act, National Environmental Policy Act NEPA, FLPMA and PRIA.

Livestock grazing is authorized through grazing permits and leases which are typically issued for a 10-year term. The preference includes active use and suspended nonuse. For the active use, the permit/lease identifies the number and types of livestock and periods of use.

Suspended nonuse represents that portion of the preference that is held in suspense by BLM and cannot be activated by the permittee/lessee. Often the suspended preference is the result of BLM's monitoring program indicating that the grazing capacity of an allotment is not adequate to support full preference numbers.

Each year the permittee/lessee is provided the opportunity to apply for a portion of the active use to be in nonuse. The nonuse that is initiated by the permittee/lessee is different from suspended nonuse. When BLM approves the nonuse applied for by the livestock operator, the operator does not have to pay for the identified AUMs.

BLM records show that 1,891,665 active use AUMs of preference are currently attached to base properties for New Mexico. Of the 1,968,341 AUMs of preference, 76,676 AUMs are held in suspended nonuse. BLM records show that 1,891,665 AUMs of forage from the lands BLM administers are active or available for use. Preference, suspended nonuse, and active use are all reflected on the permits and/or leases.

In New Mexico, more than 2,000 operators are authorized to graze livestock on 2,193 allotments. Of these allotments, 1,321 have livestock grazing authorized by permits issued under Section 3. There are 872 grazing allotments where grazing is authorized by leases under Section 15 of the TGA. Allotments vary in size in regard to the number of active AUMs. The smallest allotment contains one AUM, while the largest has 37,940 AUMs. The types of livestock authorized to graze on the public lands include cattle, horses, bison, sheep, and goats. Sheep and goats can be found mostly in the Las Cruces, Carlsbad, Farmington, Albuquerque, Roswell and Taos Field Offices.

Seven FOs are responsible for administering the grazing regulations on public lands at the local level. (see Map 1-1) However, each office is distinct, varying in size, types of resource programs, budget, and personnel. These factors and others affect the intensity of management devoted to the public lands. The number of permits, leases and AUMs for each field office are shown in Table 3-6.

The laws mentioned above direct the BLM in its responsibility to authorize and manage livestock grazing use under the principles of multiple use and sustained yield, and to prevent the degradation of the rangeland resources by providing for their orderly use, improvement, and development. Early planning documents such as the Management Framework Plan (MFP) and grazing EIS's established resource objectives along with management actions needed to attain them. Valid MFP decisions and related information were later incorporated to support the BLM's present planning document, the RMP. Today, BLM combines the RMP and EIS to fulfill their commitment to implement a livestock grazing program that is in compliance with NEPA.

RMP/EIS documents have been written for each field office which is responsible for implementing its individual RMP decisions. (For a list of the various RMP's refer to Chapter 1.)

TABLE 3-6 NUMBER OF PERMITS AND LEASES AND AUMS BY FIELD OFFICE					
	Total Preference AUMs	**Active Use Preference AUMs**	**Suspended Preference AUMs**	**Section 3 Permits**	**Section 15 Leases**
Carlsbad	402,185	367,717	34,468	200	62
Farmington	121,970	112,855	9,115	130	34
Las Cruces	638,975[1]	634,350	4,625	368	211
Albuquerque	146,294	145,272	1,022	112	135
Roswell	367,049	353,092	13,957	203	211
Socorro	238,472	233,359	5,113	204	56
Taos	53,396	45,020	8,376	104	163
Total	1,968,341	1,891,665	76,676	1321	872

1 Does not include AUMs of forage for McGregor Range.

Source: BLM Grazing Authorization and Billing System files

Allotment Classification

In the 1980s, BLM developed allotment classification criteria to assist individual field offices in identifying allotments with the highest priority for public investments. Allotments in the "Improve" category were the highest priority for management attention and range improvement investment.

Allotments were placed in one of three categories based on BLM criteria as shown below. The criteria for each category were numerous and seldom would an allotment meet all criteria for a category.

- "Maintain" (M) category
  - present range condition is satisfactory
  - allotments have a moderate or high resource production potential, and are producing near their potential (or trend is moving in that direction)
  - no serious resource-use conflicts/controversies exist
  - opportunities may exist for positive economic return from public investments
  - present management appears satisfactory
  - other local criteria

- "Improve" (I) category -
  - present range condition is unsatisfactory
  - allotments have a moderate or high resource production potential, and are producing at low to moderate levels
  - serious resource-use conflicts/controversy exist
  - opportunities exist for positive economic return from public investments
  - present management appears unsatisfactory
  - Other local criteria

- "Custodial" (C) category -
  - present range condition is not a factor
  - allotments have a low resource production potential, and are producing at low to moderate levels
  - limited resource-use conflicts/controversy may exist
  - opportunities for positive economic return on public investments do not exist or are constrained by technological or economic factors
  - opportunities exist to achieve the allotments potential through changes in management
  - other local criteria

Allotments within each category do not have to meet all the criteria to be managed according to the category objectives. Grazing allotments within New Mexico have been categorized as follows:

Category M	870 allotments	4,765,981 acres
Category I	561 allotments	6,747,894 acres
Category C	762 allotments	1,329,018 acres

The categorization of allotments has allowed BLM to direct attention to those areas where grazing management is needed most to improve the resource or resolve serious resource use conflicts.

Such a mechanism to resolve use conflicts has been needed, especially in view of the perception some individuals or groups have had toward livestock grazing. During the last decade, grazing by livestock on public land in the United States has come under increasing public scrutiny. Concerns are that such grazing has caused and is continuing to cause, among other things, diminished are biodiversity, deteriorated range condition, increased soil erosion, desertification, depleted watersheds and riparian areas, (e.g., banks of a river or other body of water), impoverished wildlife habitat, declining wildlife population, and decreased recreational opportunities and experiences Council of Agriculture Science and Technology 1996).

The grazing program is part of the BLM's overall multiple use management program for public lands. To authorize grazing use or grazing related actions, other uses of the lands or resource values (wildlife, wilderness, recreation, mining, etc.) are addressed only as they relate to, or may be affected by, livestock grazing use.

A variety of management actions or tools are available to properly manage grazing on public rangelands in accord with multiple use mandate. These include grazing systems, rangeland improvements and their proper placement, fire, salting, and others. Implementation of these actions, within each category, is conducted in conjunction with "careful and considered consultation, cooperation, and coordination with lessees, permittees, and landowners involved..." as required by Section 8 of (PRIA).

A useful tool for Rangeland Management has been the Allotment Management Plan (AMP), which is an action plan between the permittee and BLM, with input from the interested public. AMPs or other Livestock Activity Plans (LAPs) have been developed on 290 allotments, and also include those plans prepared by other agencies or plans developed by permittees. AMPs have helped BLM to be successful in resolving conflicting issues and meeting goals, by prescribing grazing use (grazing systems), rangeland improvements, and other actions, along with identifying specific objectives for grazing and objectives from other activity plans e.g., Habitat Management Plans. The BLM has expended much effort managing and improving the public rangelands; however, credit also must be given to many grazing permittees who, through their cooperation and good stewardship, have likewise contributed to the improvement of the public rangelands.

Grazing systems provide deferment or periodic rest of the rangeland from livestock grazing. When used with other techniques, they can successfully allow for plant growth and regrowth. Plants are affected more when grazed during their active growth, and especially so if they do not have the time to recover from defoliation before the end of the growing season. However, season-long use is not an inherently inappropriate management system. If all the proper tools are used to obtain a fairly uniform grazing distribution after range readiness and if the correct utilization level is reached, season-long grazing need to be neither destructive nor undesirable (Heady and Child 1994). When designing a grazing system, many factors must be considered, including the needs of the allotment, fencing, cost, stocking rate, water, salt, utilization level desired, and management objectives, among other considerations. Continuous grazing should not be discounted as long as objectives can be met. (Bedell, 1992)

Management Issues

A number of riparian areas exist around the state. Livestock grazing can be compatible. However, it depends on the extent to which grazing management considers and adapts to certain basic ecological relationships. Grazing management practices that improve or maintain the upland may not improve or maintain the riparian area. To be managed effectively, the whole pasture containing the riparian zone and the whole watershed is considered.

Plant species such as snakeweed, piñon-juniper, sagebrush, mesquite, and others affect the stability of soils and the productivity of rangelands, reducing the amount of forage available for livestock and wildlife. Through returns from livestock grazing fees, a total of

233 brush control or land treatment projects have been performed on thousands of acres to achieve a desired plant community. This has benefited both wildlife and livestock, as well as watershed and other resource values. For example, pronghorn antelope have been relocated to some of the land treatment areas to reintroduce or increase the population.

In considering other resource uses, fences have been modified in some areas so as not to obstruct the movement of deer and antelope. Fence design standards are available to meet a variety of resource management situations. RMP decisions in some Field Offices have directed the modification of some existing fences. The fences are modified by removing specific sections (100 to 200 feet) and replacing them with 4-or 5- strand wire.

The increasing number of elk in some areas is a concern. Elk compete with livestock for forage and have contributed to certain public lands being heavily grazed. Over 100,000 acres in some 20 allotments are affected by this problem. Unrestricted grazing by great numbers of wild ungulates (e.g., deer or elk), also can affect rangelands detrimentally (Chase 1986, Cole 1971)

WILD HORSES AND BURROS

The Wild Free Roaming Horse and Burro Act of 1971 requires wild horses and burros to be managed at appropriate levels and prohibits their relocation to areas where they had not lived before 1971. One of the act's goals is to manage populations to create an ecological balance on federal land.

A prerequisite for resource decisions and activities in the BLM is land use planning. For wild horses and burros, planning first addresses the question of whether a herd area is to be a Herd Management Area (HMA). A herd area is an area that was used by wild horses or burros as habitat in 1971 when the act was passed. A HMA is a herd area where the land use planning process has determined that wild horses or burros will be managed. In New Mexico, BLM has identified one HMA, the Bordo Atravesado HMA located 15 miles east of Socorro. The boundaries of the HMA are the same as those for the Bordo Atravesado grazing allotment. This 16,000 acre unit supports 273 head of cattle, a herd of about 50 wild horses and deer and pronghorn antelope.

An HMA Plan was developed for the area in 1980 and amended in 1985. The amendment reflected the new appropriate management level of 50 wild horses, an increase from the old level of 32.

The apparent range condition is fair to good within the wild horse HMA. Range studies indicate that the trend is static. This condition should be maintained so long as the appropriate management level is maintained and not exceeded.

When studies indicate an excessive use of forage, arrangements are made to remove a selected number of wild horses from the range. In 1995, monitoring indicated forage use of 46 to 54 percent. As a result, 29 wild horses were removed from the 71 head on the range.

Although there are problems encountered between livestock and wild horses, cattle usually do not pose a problem for the wild horses. The operator exercises control over his cattle and their movement from pasture to pasture. The entire herd (273 head) is periodically moved out of a pasture, providing it with deferment from cattle grazing, which benefits the wild horses.

Wild horses are also found within the Farmington Field Office. Some 85 to 100 run mostly on the Carson National Forest and occasionally on BLM lands. The area used by the wild horses is 80,000 acres in size - 75,000 acres of Forest Service land and 5,000 acres of BLM land. The Forest Service is the lead agency for managing the wild horses in this area, and with some assistance from the BLM, conducts population counts, monitoring, and gathering.

WILDLIFE

Big game animals are found throughout New Mexico on public lands. In addition to these animals, public lands provide habitat for other wildlife including a large number of mammals, birds, reptiles, fish, and amphibians. The BLM manages public lands to provide for wildlife habitat under the multiple use concept mandated by the FLPMA.

Some limiting factors potentially affecting wildlife populations are not within BLM's control. For example, although BLM has responsibility for management of the wildlife habitat, the animals themselves are often

managed by other agencies. Additionally, natural events such as drought, fire, disease, and predation can severely reduce wildlife populations. When natural events such as a wet cycle occur, and habitat conditions are favorable for a certain species, then populations can increase dramatically, such as often happens with quail populations.

The combination of rancher-provided livestock water and BLM-provided water through the use of range improvement funds received from grazing fees, has improved wildlife habitat for a number of wildlife species dependent upon year-long water provided by pipelines and associated drinking troughs on most of the allotments within the state of New Mexico. The use of land treatments (prescribed fire, chemical, and mechanical) has improved wildlife habitat by reducing the amount of undesirable brush species; increasing ground cover and litter with grasses, shrubs, and forbs; and decreasing soil erosion. In some cases, increasing the number of range improvements may negatively affect wildlife habitat, by encouraging livestock use and disturbance of wildlife seclusion areas; for example, reduction of ground cover for ground nesting birds or disturbance to big game fawning and calving areas (Krausman 1996).

The following is a 30 year summary for selected big game species on public lands based on estimated numbers of big game animals (USDI, BLM 1966, 1976, 1986, 1989, 1996 - *Public Land Statistics)*.

Antelope	**Year**	**Numbers**
	1947	9,251
	1956	7,085
	1966	7,500
	1976	8,700
	1986	4,700
	1996	7,320

Antelope numbers are not cyclic, but population estimates appear to fluctuate perhaps due to habitat conditions, such as drought or hunter harvest.

Mule Deer	**Year**	**Numbers**
	1947	18,300
	1956	12,570
	1966	43,000
	1976	37,000
	1986	28,700
	1996	31,000

The deer numbers appear to be decreasing on public lands. This is consistent with the statewide trend for the species. The reasons for this trend have not been positively identified by the New Mexico Department of Game and Fish.

Elk	**Year**	**Numbers**
	1947	0
	1956	0
	1966	170
	1976	1,100
	1986	1,700
	1996	6,000

Elk numbers have increased substantially on public lands and have become an issue within the state with livestock operators. The NMDGF has responsibility for managing elk, and has agreed to regulate wildlife populations on the public lands consistent with resource capability (Memorandum Of Understanding between NMDGF and BLM 1990). They are in the process of addressing the elk issue. Possible habitat degradation and the potential loss of livestock AUMs are issues of concern.

Public meetings for all regions within the state were conducted in the summer of 1997 to gather information and concerns on elk population levels and cooperatively establish goals and objectives. The NMDGF will control the elk population according to biological data and the outcome on issues from these meetings (personal comm. Dan Sutcliffe, NMDGF 1997).

Javelina	**Year**	**Numbers**
	1947	0
	1956	200
	1966	600
	1976	650
	1986	800
	1996	3,470

Javelina numbers are growing rapidly on public lands. However, they do not appear to be causing resource damage and therefore have not created a concern.

Bighorn Sheep	**Year**	**Numbers**
	1947	67
	1956	0
	1966	30
	1976	44
	1986	60
	1996	170

Bighorn sheep numbers are increasing on public lands due to a joint recovery and transplanting program between BLM and NMDGF.

Bear	Year	Numbers
	1947	NA
	1956	NA
	1966	NA
	1976	0
	1986	0
	1996	181

Bear numbers appear to be increasing and dispersing in New Mexico. This has created a growing number on public lands.

Turkey	Year	Numbers
	1947	NA
	1956	NA
	1966	NA
	1976	NA
	1989	100
	1996	1,000

Turkey numbers are increasing on public lands.

Barbary Sheep	Year	Numbers
	1947	NA
	1956	NA
	1966	200
	1976	340
	1986	500
	1996	450

Barbary sheep are an introduced species brought to New Mexico in the 1960s by the NMDGF and private interests. Their numbers appear to have peaked in the 1980s.

Wildlife Habitat by MLRA

The following is a brief description of wildlife habitat in the nine MLRAs. The diverse, intermingled plant communities offer numerous habitats for a variety of wildlife species in each MLRA.

36 - New Mexico and Arizona Plateaus and Mesas

Most of this area supports grassland vegetation with large quantities of shrub species present, providing food and cover for wildlife. Piñon-juniper woodlands are located at the higher elevations and along escarpments.

Mule deer range throughout this MLRA. Populations are down, consistent with the trend for mule deer throughout New Mexico. Several factors are suspected for this recent decline such as predators, drought which leads to poor habitat quality, competition with elk and effects breeding and fawn survival, increased hunting pressure, and poaching on public lands.

Rocky Mountain elk reside on public land in the higher elevations of this MLRA and increase in numbers during the winter months. All herds seem to be increasing and expanding throughout their range and are competing with livestock for forage. Due to this increase in elk numbers, some upland and riparian habitats are being degraded, especially during severe winters. Black bear and mountain lion are scattered throughout the MLRA in the pinon-juniper woodland and escarpments, preying upon the dwindling deer herds and other prey-base species. Other mammals such as bobcat, coyote, gray fox, tassel-eared squirrel, black-tailed jack rabbit, desert cottontail, deer mouse, brush mouse, Townsend's ground squirrel, and white-tailed prairie dog can be found throughout the MLRA.

Merriam's turkey use this MLRA, as well as the Ignacio Chavez Wildlife Special Management Area in the Albuquerque Field Office. Scaled quail, Gambel's quail, and mourning dove are the primary game birds within the MLRA. Several areas within the MLRA have been identified as wildlife areas of special management concern for raptors such as nesting sites, feeding areas, and seasonal habitat needs. The golden eagle, prairie falcon, ferruginous hawk, and bald eagle are the primary raptors. Other raptor and avian species include burrowing owl, American kestrel, red-tailed hawk, sage thrasher, sage sparrow, black-billed magpie, gray flycatcher, horned lark, and several other passerine and song bird species.

Most common reptiles include the collared lizard, prairie lizard, eastern fence lizard, western whiptail, striped whipsnake, western garter snake, western rattlesnake, western ground snake, western skink, and common bullsnake.

37 - San Juan River Valley Mesas and Plateaus

This MLRA supports wildlife that use the sagebrush and desert shrub community of Northwestern New Mexico. In higher elevations some pinon-juniper and mountain mahogany along with western wheatgrass and galleta can be found. Sagebrush tends to be the dominant shrub species. These sagebrush areas contain less species diversity than other plant communities and are typically associated with the cold desert where snow and cold weather causes wildlife to use habitat areas in seasonal patterns (wintering areas). This habitat is considered a biotic zone between the high coniferous regions and the lower grassland areas. As a result, the sagebrush community can be used as a singular habitat type for some species or in conjunction with other vegetational habitats for migratory species.

Pronghorn antelope commonly live within the sagebrush community where sagebrush is lower than 24 inches tall and a variety of forbs and other forage occupy the stand. Within the Farmington Field Office, scattered small herds of pronghorn antelope can be found in sagebrush and desert shrub-grassland types. However, even though there are large areas of apparently suitable habitat, the population is estimated to be less than 100 animals and is considered to be declining, possibly due to poaching (Farmington RMP 1988). To take advantage of available habitat, about 85 antelope were released on Ensenada Mesa in March 1989. They declined from those numbers but, apparently stabilized at approximately 60-70 head. A combination of factors may be why antelope are not present in large numbers on Ensenada Mesa according to the Farmington FO wildlife biologist. These factors include: climatic fluctuations, the quality of habitat, predation, and dry water sources.

Mule deer are residents relying upon browse for food and various topographic features for cover and escape routes. This area provides significant winter habitat for migrating deer and elk herds from the Carson and Santa Fe National Forests. Black bear and mountain lion are scattered throughout MLRA in the piñon-juniper woodland and rough canyons. Other mammals such as bobcat, coyote, gray fox, black-tailed jack rabbit, desert cottontail, deer mouse, brush mouse, Townsend's ground squirrel, and white-tailed prairie dog can be found throughout the MLRA.

Areas within the MLRA that have received special management attention in the Farmington Field Office are raptor nesting areas for golden eagle, prairie falcon, and ferruginous hawk; and bald eagle wintering areas. Other raptor and avian species include burrowing owl, American kestrel, red-tailed hawk, sage thrasher, sage sparrow, black-billed magpie, gray flycatcher, horned lark, and several other passerine species.

Most common reptiles include the sagebrush lizard, eastern fence lizard, western whiptail, garter snake, western rattlesnake, western ground snake, western skink, and common bullsnake.

39 - Arizona and New Mexico Mountains

This MLRA is covered with an extensive stand of ponderosa pine. Because of the broad elevation range, the area supports various habitats including alpine vegetation, conifer forests, oak woodlands, and grasses; resulting in large wildlife populations.

The BLM within the state of New Mexico manages very little habitat of this type. Mule deer live in coniferous and deciduous forests, preferring rough terrain for cover and shrubs for food. Elk utilize the higher country during the summer and migrate to lower elevations during the winter. Other mammals common to the forest are mountain lion, black bear, coyote, bobcat, golden mantled ground squirrel, Albert's squirrel, chipmunk, and porcupine.

Resident birds that use the forests include the pygmy nuthatch, Steller's jay, mountain chickadee, Cassin's finch, northern flicker, northern goshawk, red-tailed hawk, sharp-shinned hawk, Mexican spotted owl, and great-horned owl.

Common reptiles include the wandering garter snake, pine gopher snake, and western rattlesnake. The most common amphibians include the Rocky Mountain toad and common leopard frog.

The coniferous and deciduous forests continue to be used heavily for recreational purposes, causing wildlife displacement.

41 - Southeastern Arizona Basin and Range

This MLRA lies within the Coronado National Forest in Hidalgo County, with a small portion overlapping

onto BLM lands. The area supports forest, savanna, and desert shrub vegetation.

Mule deer are scattered throughout the MLRA, and are most abundant in or near the various mountain ranges. Coues' whitetail deer occupy a limited range in southwestern New Mexico (Hidalgo County). The Coues' whitetail prefer the grass, mixed shrub, and conifer mountains, which are relatively undisturbed or are in or near the potential climax community. Javelina are scattered within the riparian areas, grasslands, and pinon-juniper woodlands of the MLRA. The larger concentrations exist in the southern portion of Hidalgo County.

Other mammals associated with this small MLRA include coyote, badger, black-tailed jackrabbit, black-tailed prairie dog, bannertail kangaroo rat, white-throated wood rat, and numerous smaller mammals.

Scaled quail, Gambel's quail, and mourning dove are the primary upland game bird species. Swainson's and ferruginous hawk, lesser nighthawk, Chihuahuan raven, verdin, cactus wren, pyrohuloxia, and McCown's longspur are just several other bird species that use the MLRA.

Reptiles and amphibians occurring within the MLRA include the southern prairie lizard, whiptail, western hog-nosed snake, Mexican black-headed snake, and massasauga, and green toad.

42 - Southern Desertic Basins, Plains, and Mountains

This MLRA makes up a large portion of south-central and southern New Mexico. This area supports desert grass-shrub vegetation with isolated piñon-juniper desert mountains intermingled. Many desert species are physiologically and morphologically adapted to survive extreme environmental conditions (low, erratic rainfall and highly variable temperatures). Many mammals do not require free water but depend upon their own metabolic water and water conservation strategies (nocturnal). Because of these extreme environmental conditions, desert wildlife are highly dependent upon microhabitats, especially those that provide water and thermal cover, such as vegetation patches, rock, soil, and surface debris (litter). Small changes in these microhabitats can alter species abundance and diversity.

With rapid expansion of human activities into desert habitats, many habitat components crucial to species existence are being altered, especially those important to humans and wildlife.

Desert habitats possess some of the most unusual wildlife within the state. Numerous wildlife species use or occupy the hot and dry Chihuahuan Desert shrub type of New Mexico. Desert mule deer are widespread throughout the area and rely upon various browse species for food and topographic features for cover and escape routes. Several small pronghorn antelope herds are found throughout the MLRA. Desert bighorn sheep are intensively managed in the southwestern portion of this MLRA. The bighorn population is less than 100 animals and has been fluctuating between 75 and 100 animals for the past several years (USDI, BLM Mimbres RMP 1993). Competition for feed with deer and livestock is a major concern in the bighorn sheep-occupied mountain ranges (USDI, BLM, Mimbres RMP 1993). Important food items include mountain mahogany, cactus, winterfat, oak, and some grasses and forbs. Disease and predation are other serious problems that are affecting the size and health of the bighorn sheep population.

Javelina use the desert floor west of the Sacramento Mountains where desert plant species such as prickly pear, agave, ocotillo, sotol and scattered junipers are more abundant. A herd of Iranian ibex, an exotic species, occupies the Florida Mountains south of Deming, New Mexico. Numerous releases occurred in the 1970s totaling 73 animals. In 1990, the population ranged from 400 to 500 animals, with a carrying capacity set in 1988 for 400 animals. Their diet primarily consists of mountain mahogany, silktassel, and oak. Oryx are located within the MLRA, primarily on military withdrawn lands. In recent years, they have moved onto BLM lands in the Las Cruces, Socorro, and Roswell Field Offices. There is some concern from permittees on the competition for forage between oryx and livestock and the destruction of fences from these large exotic mammals moving through the area (personal comm. Bill Stephenson 1994).

Barbary sheep (Audad) are scattered throughout the rolling hills and canyons. In the early 1980s, populations were high and competition with mule deer and range sheep for forage-primarily browse species-was occurring. Since then, Barbary sheep populations

have dropped and are somewhat stable under the current hunting regulations.

Other mammals associated with this small MLRA include coyote, kit fox, spotted skunk, Merriam's kangaroo rat, rock squirrel, southern grasshopper mouse, spotted ground squirrel, black tailed prairie dog and numerous other small mammals.

Scaled and Gambel's quail, and mourning and white winged dove are the primary upland gamebirds within the MLRA. Raptor species dependent upon topographic features or large brush species for nesting sites include the Harris hawk, prairie falcon, great-horned owl, burrowing owl, and American kestrel. Several avian species that use the southern desert include the Chihuahuan raven, Crissal thrasher, canyon towhee, and other passerine birds.

The southern desert provides a large diversity of reptiles and amphibians. Some of these include the side-blotched lizard, Clark's spiny lizard, lesser and greater earless lizard, desert iguana, Gila monster, sidewinder, and numerous other reptiles.

48 - Southern Rocky Mountains

This area supports forests on upper slopes, alpine tundra above timberline, and shrub-grass vegetation at lower elevations. Rocky Mountain elk are the primary big game animal occupying the area year-round. Mule deer are scattered throughout the area during the warmer seasons and migrate to lower elevations in the winter. Several transplants for Rocky Mountain bighorn sheep have been conducted in recent years and have been successful in the northern part of the Pecos wilderness and Wheeler Peak areas. Blue grouse use the lodgepole pine, spruce, and fir forests. Small isolated populations of Merriam's turkey occupy this MLRA and are usually associated with the ponderosa pine forest at lower elevations. Black bear, mountain lion, and other game species use the area on a year-round basis.

51 - High Intermountain Valleys

Wildlife species within this MLRA are generally common varieties due to the diversity of habitats. All of the land description lies within the Taos Field Office. Mule deer are scattered throughout the area with the habitat in relatively good condition. Rocky Mountain elk primarily reside in the northern portion of the unit; however, small resident populations occur on Pot Mountain, Cerro Montoso, Guadalupe Mountain, and West Picuris. The winter population increases as wintering elk migrate to the San Antonio/Pot Mountain Wildlife Habitat Area (WHA). It is not uncommon to see an additional 1,500 head of elk during a severe winter within the WHA. Pronghorn antelope habitat is extensive in the San Antonio/Pot Mountain WHA. The population is below optimum, but is increasing (850 animals) (Taos RMP 1988). Black bear and mountain lion occur in limited numbers in mountainous areas and along the Rio Grande Gorge. Other mammals associated with this MLRA include coyote, bobcat, ringtail cat, gray fox, black-tailed jackrabbit, white-tail prairie dog, spotted skunk, rock squirrel, northern grasshopper mouse, and numerous other small mammals and rodents.

Upland game birds include the mourning dove, scaled quail, Merriam's turkey, band-tailed pigeon, and blue grouse, none very common on public lands within the MLRA. The upper portions of the Rio Grande provide significant habitat for raptor nest sites. Some of these are sensitive to human presence, including the prairie falcon and golden eagle. Other raptors that use the deep rim-rock canyon and upland sites for prey include the great-horned owl, red-tailed hawk, and American kestrel.

70 - Pecos-Canadian Plains and Valleys

This MLRA supports wildlife species dependent on the plains grassland vegetation, which is dominated by short- and mid-grasses. However, there are some large areas of public land on the eastern boundary of the MLRA having significant amounts of tall grasses (bluestems) and shinnery oak. Within the Roswell Field Office, this area is known as the Mescalero Sands or Caprock WHA and encompasses approximately 570,00 acres of which 270,000 acres are of public domain. Another area north and west of Roswell known as the Macho WHA encompasses approximately 1,750,000 acres of which 634,000 acres are federal domain.

Desert mule deer are scattered throughout the MLRA, especially near large concentrations of shrubs and brush, drainages, and the shinnery oak sandhills. Pronghorn antelope are the most common large herbivorous mammal in the open grasslands.

Competition for space and forage occurs on sheep allotments within the Roswell and Carlsbad Field Offices, primarily within the Macho WHA for the pronghorn antelope, in search of forage and fawning areas, especially during drought periods (USDI, BLM 1986 - *Macho Habitat Management Plan, 1986*).

In southeastern New Mexico, the lesser prairie chicken is the primary upland game bird for which the BLM manages habitat. Prairie chickens are found almost exclusively in the shinnery-oak dune/tallgrass community and depend heavily on the residual growth of little and sand bluestem for nesting habitat. Over the past seven years the population has dropped considerably, not only in New Mexico but all over the occupied range. A petition for listing the species as threatened has been received by the U.S. Fish and Wildlife Service (USFWS). An interstate working group has be formed to address certain issues within the petition and its validity. The Roswell Field Office has also initiated a longterm study on the prairie chicken to determine habitat requirements and use areas and hopefully gain biological data that will be helpful in making sound management decisions.

Scaled and bobwhite quail, morning dove, and ring-necked pheasant are other upland game girds associated with this MLRA.

Numerous other birds use the grasslands due to the variety in grasses, forbs, and shrubs. The most common birds include the horned lark, killdeer, western meadowlark, vesper sparrow, pyrohuloxia, mockingbird, and loggerhead shrike. Raptors include the Harris, red-tailed, ferruginous, and Swainson's hawks; great-horned owl; burrowing owl; and American kestrel.

The warm prairie environment in this MLRA supports a large number of reptile species compared to higher elevations. The more common reptiles include the short-horned lizard, lesser earless lizard, eastern fence lizard, sanddune lizard (special status species), western box turtle, coachwhip, bullsnake, prairie rattlesnake, and western rattlesnake.

77-Southern High Plains

The majority of this MLRA is under private and state ownership.

Pronghorn antelope are the most common large herbivorous mammal in the open grasslands, but desert mule deer may be present near shrubs and brush associated with drainages and topography.

The largest predator on the grasslands is the coyote. Other carnivorous mammals include the kit fox, and badger. The grasslands also support ground squirrel, prairie dog, pocket gopher, and pocket mice.

Birds are numerous within the grasslands due to the variety in grasses, forbs, and shrubs.

Reptiles are scattered throughout the MLRA, but due to climatic conditions and habitat, reptiles lack the diversity compared to the southern desert regions.

Riparian Habitat Areas

Riparian habitat is perhaps the most significant, yet smallest habitat type occurring on public lands within the state. Functioning riparian areas in all climatic regimes support a diverse array of plant communities providing a variety of food, cover, and water, and often contain special ecological features that are not often found in upland sites. Numerous wildlife species occupy or use riparian areas for forage, water, and nesting and denning sites.

Wildlife assemblages in riparian areas are characterized by large numbers of bird species, including waterfowl (such as geese, ducks and grebes), shorebirds (cranes, herons, egrets, rails, gulls), predators including owl and hawk species, woodpeckers, belted kingfishers, and songbirds (dippers, swallows, warblers, flycatchers, jays, and wrens). Migrating birds also use the areas as resting places in the spring and fall seasons.

Lowland riparian ecosystems harbor more species of reptiles and amphibians than do other ecosystems in the state due to warmer temperatures, abundant shelter, and large numbers of insects and other animals available for food. The more common reptiles and amphibians are tiger salamander, leopard frog, chorus frog, Great Plains toad, painted turtle, yellow mud turtle, water snake, garter snake, and bullsnake.

The quality of fisheries has a direct correlation to the health of the riparian community and the best opportunity for improving fisheries is to restore degraded riparian areas.

Special Status Species

For this EIS, informal Section 7 Consultation under the Endangered Species Act was initiated with the USFWS on October 23, 1996 (Appendix C-1). The USFWS responded with a list of species by county on November 8, 1996 (Appendix C-2). The list identifies 60 federally listed, proposed, and candidate species in New Mexico. The BLM has identified 40 of the 60 as potentially occurring on the public lands (Appendix C-3, Table A).

BLM policy requires that state listed and BLM sensitive species also be considered in BLM planning efforts. In addition to the USFWS list, this EIS also incorporates the BLM Sensitive Species List, animal species listed by the (NMDGF), and plant species listed by the New Mexico Division of Forestry and Resource Survey as endangered or threatened. A total of 149 of the 202 species are likely to occur on public lands. These species are listed in Appendix C-3, Table B.

In order to evaluate of the habitat use and distribution characteristics of the species on the lists, several categories were developed, including a habitat description which was classified broadly as biome, and restricted distribution. Table 3-7 shows the number of

TABLE 3-7
NUMBER OF SPECIAL STATUS SPECIES BY HABITAT TYPE (BIOMES)

HABITAT (BIOMES)	TOTAL ACRES OF PUBLIC LANDS	NUMBER OF SPECIES STATEWIDE	PERCENT OF SPECIES STATEWIDE	NUMBER OF SPECIES ON PUBLIC LAND	PERCENT OF SPECIES ON PUBLIC LANDS
WETLAND/ RIPARIAN/ AQUATIC	244 segments[1]	111	44	76	29
WOODLANDS	3,104,000	107	42	89	34
DESERT	4,453,000	56	22	55	21
CONIFER FOREST	13,000	54	21	31	12
GRASSLAND	5,668,000	48	19	40	15
TUNDRA	0	1	<1	0	0
UNKNOWN		1	<1	1	<1
TOTAL	13,495,000	262	100[2]	189	100[3]

Source: BLM Files

[1]The 244 segments represents approximately 13,7000 acres.

[2]The total percent of species is more than 100% because many species occupy more than one habitat.

[3]The total percent of species is more than 100% because many species occupy more than one habitat.

special status species by biome (habitat type). Some species occurred in more than one category, and therefore the total of percentages do not add to 100.

Based on species listing, the wetland/riparian/ aquatic and woodland habitats in New Mexico are the habitats of the most concern. This is in agreement with the New Mexico Gap Analysis Project (Thompson et al., 1996), which found that vertebrate species richness was greatest in riparian corridors, foothills, and mid-elevation mountainous areas.

Eighty-eight species (35 percent of them) exhibited a form of endemism or naturally restricted occurrence. For example, 34 species (13 percent) occur in the Bootheel Area of southern Hidalgo County. This area is influenced by the extension of the Sierra Madre ecosystem into the United States from Mexico in this area. In addition, species richness is generally higher in the southern desert and grassland MLRAs (MLRAs 41 and 42) than in the more northerly areas. This is roughly consistent with the habitat distribution of special status Species described above.

Federally listed species with local or regional concerns with regard to public land management were identified in the recent statewide formal Section 7 consultations. These include the southwestern willow flycatcher, with its proposed critical habitat (riparian habitats); Pecos bluntnose shiner with its designated critical habitat (aquatic habitat in the Pecos River); Pecos gambusia (aquatic habitat in Pecos River); spikedace (aquatic habitats in the Gila River); loachminnow (aquatic habitats in the Gila River); Razorback Sucker with its designated critical habitat (aquatic habitats in the San Juan River); Colorado River squawfish with its designated critical habitat (aquatic habitats in the San Juan River); and aplomado falcon (Chihuahuan Desert grasslands habitats in the Las Cruces Field Office); Mesa Verde cactus (Great Basin Desert); Sneed's pincushion cactus (Chihuahuan Desert); Zuni fleabane (Socorro Field Office); peregrine falcon (Caballo portion of the Las Cruces Field Office), Sacramento prickly poppy (Caballo portion of the Las Cruces Field Office); and least tern (aquatic/riparian/wetland habitats in the Roswell Field Office).

RMP Biological Opinions

Formal consultations were initiated in January 1996 to bring each of the eight RMPs into compliance with the requirements of Section 7 of the Endangered Species Act. Specifically, the consultations addressed the impacts of land use allocations in the RMPs on species that were listed as threatened endangered, that had not been consulted on previously. The consultations were concluded in May 1997 with Biological Opinions from the USFWS, which are summarized in Table 3-8. The USFWS issues Biological Opinions to determine whether an action will jeopardize the continued existence of a species - either a Jeopardy or Non-jeopardy determination is issued as the opinion. The following are included with a Biological Opinion:

- Reasonable and Prudent Alternatives - non-discretionary (required) actions applied to a Jeopardy determination. They are actions that can be implemented in a manner consistent with the intended purpose of the action, are within the legal authority of the agency, are economically and technologically feasible, and avoid the likelihood of jeopardizing the continued existence of a species or adverse modification of critical habitat.

- Incidental Take - an official permitting of taking (defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting a listed species) that is incidental to an agency action, but not a part of the action. An implementation of the action.

- Reasonable and Prudent Measures - binding on all permits and permittees engaging in activities covered by Incidental Take. Reasonable and Prudent Measures may also be applied without an Incidental Take statement.

- Conservation Recommendations - discretionary actions suggested by USFWS to minimize or avoid the adverse effects of an action. Implementation of Conservation

- Recommendations is discretionary by the agency.

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
TAOS RMP, TAOS FIELD OFFICE				
Opinion: Jeopardy for the southwestern willow flycatcher				
Southwestern Willow Flycatcher	1. Develop a management plan for the flycatcher. 2. Allow no livestock grazing in occupied or potential habitat from April 15 to September 15. 3. Allow no new construction or expansion of campgrounds in occupied or potential habitat.	Two birds (one pair)	1. Reduce likelihood of cowbird parasitism. 2. Allow no modification of occupied or potential habitat.	1. Continue flycatcher surveys. 2. Summarize upland vegetation and soils trend data to aid in flycatcher management. 3. Assess the impacts of winter grazing on riparian vegetation. 4. Continue to exclude riparian areas from grazing and monitor vegetation and soil responses. 5. Monitor recreation uses in flycatcher habitat. Assess the effectiveness of management actions.
RIO PUERCO RMP, ALBUQUERQUE FIELD OFFICE				
Opinion: Non-jeopardy for the southwestern willow flycatcher				
Southwestern Willow Flycatcher	None	None	None	1. Continue flycatcher surveys. 2. Allow no grazing in potential habitat without completing Section 7 consultation. 3. Allow no habitat modification or vegetation manipulation in potential habitat. Complete a programmatic consultation on vegetation manipulation. 4. Summarize upland vegetation and soils trend data to aid in flycatcher management. 5. Develop a management plan for the flycatcher. 6. Assess the impacts of winter grazing on riparian vegetation. 7. Continue to exclude riparian areas from grazing and monitor vegetation and soil responses.
WHITE SANDS RMP, LAS CRUCES FIELD OFFICE				
Opinion: Non-jeopardy for the southwestern willow flycatcher, aplomado falcon, Sacramento prickly poppy, and peregrine falcon				
Oil and Gas Leasing	None	Not Applicable	None	1. Complete a programmatic Section 7 consultation on oil and gas leasing in the field office.

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
Southwestern Willow Flycatcher	None	None	None	1. Continue surveys. 2. Complete a grazing/riparian management plan for Percha Creek. 3. Complete the RMP amendment designating the Three Rivers Petroglyph Area ACEC, and exclude the riparian area from grazing. 4. Monitor any flycatcher nests for success and cowbird parasitism. 5. Initiate a cowbird trapping program if nest parasitism exceeds 10 percent. 6. Identify and survey any potential habitat on public land along the Rio Grande. 7. Identify and evaluate any livestock concentration areas adjacent to the Rio Grande corridor. Manage these areas to minimize use by cowbirds.
Aplomado Falcon	None	None	1. Initiate a research project to determine the extent of habitat in the Caballo portion of the Las Cruces Field Office. 2. Compare the suitability of habitat and livestock management practices between potential habitat in Caballo and occupied habitat in Chihuahua, Mexico. 3. Within five years, evaluate research project data to determine the need for changes in management to facilitate recovery of the aplomado falcon.	None
Sacramento Prickly Poppy	None	None	None	1. Complete the RMP amendment for expansion of the Sacramento Escarpment Area of Critical Environmental Concern (ACEC). 2. Monitor prickly poppy populations every three years.

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
Peregrine Falcon	None	None	1. Complete the RMP amendment for expansion of the Sacramento Escarpment ACEC. 2. Monitor historic or suitable habitat or consider habitat occupied in the absence of monitoring information. Reduce or eliminate any documented adverse impacts.	1. Develop a Site Management Plan for historical/suitable habitat. 2. Reduce disturbance within 1 mile of historic/suitable habitat. 3. Schedule management activities in accordance with Johnson 1994.
MIMBRES RMP, LAS CRUCES FIELD OFFICE				
Opinion: Jeopardy for the southwestern willow flycatcher Non-jeopardy for the aplomado falcon, Sneed's pincushion cactus, loachminnow, and spikedace				
Southwestern Willow Flycatcher	1. Revise Mimbres RMP to eliminate grazing from the Gila Lower Box. 2. Initiate a cowbird trapping program if nest parasitism exceeds 10 percent. 3. Allow no livestock grazing in occupied or potential habitat from April 15 to September 15. Manage to improve potential habitat and maintain occupied habitat. Assess the effects of winter grazing on habitat suitability. 4. Develop a management plan for the flycatcher.	Two pair	1. Continue to survey habitat in the Gila River. Monitor nest success and nest parasitism for two seasons. 2. Determine whether public land livestock management activities contribute to cowbird populations within 5 miles of the Gila Lower Box, Rio Grande near Radium Springs, and other occupied nest sites as discovered. 3. Identify and survey any potential habitat on public land along the Rio Grande.	None

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
Aplomado Falcon	None	Indeterminate, indexed to habitat in Mexico and the results of the research project	1. Initiate a research project to determine the extent of habitat in the Mimbres portion of the Las Cruces Field Office. 2. Compare the suitability of habitat and livestock management practices between potential habitat in Mimbres and occupied habitat in Chihuahua, Mexico. 3. Within five years, evaluate research project data to determine the need for changes in management to facilitate recovery of the aplomado falcon.	None
Sneed's Pincushion Cactus	None	None	None	1. Complete the locatable mineral withdrawal for the Organ/Franklin Mountains Area of Critical Environmental Concern. 2. Issue guidance to include specific protective mitigation measures being used in the field for Sneed's pincushion cactus protection for locatable minerals exploration.
Loachminnow, Spikedace	None	Indeterminate, indexed to habitat trend	1. Manage grazing on 810 acres of uplands around the Gila Middle Box to minimize erosion impacts on the Gila River. 2. Manage public land watersheds of the Gila River to minimize erosion impacts on the Gila Middle Box. 3. Monitor spikedace and loachminnow populations and their habitats in the Gila Middle Box and Gila Lower Box to determine trend.	None
SOCORRO RMP, SOCORRO FIELD OFFICE				

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
Opinion: Non-jeopardy for the Zuni fleabane and aplomado falcon				
Zuni Fleabane	None	None	None	1. Complete a mineral withdrawal on the Sawtooth ACEC.
Aplomado Falcon	None	None	None	1. Initiate a research project to determine the extent of habitat in the Socorro Field Office. 2. Rank potential habitat for suitability and reintroduction. Survey potential habitat for presence of aplomados for a minimum of two years. 3. Compare the suitability of habitat and livestock management practices between potential habitat in Socorro and occupied habitat in Chihuahua, Mexico. 4. Within five years, evaluate research project data to determine the need for changes in management to facilitate recovery of the aplomado falcon.
CARLSBAD RMP, CARLSBAD FIELD OFFICE				
Opinion: Non-jeopardy for the Pecos bluntnose shiner				

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
Pecos Bluntnose Shiner	None	None	None	1. Continue policy of no new oil and gas leasing on lands within the 100-year floodplain of the Pecos River unless it can be demonstrated that other mandatory protective measures will provide adequate protection. 2. Determine if Bureau of Reclamation measures provide protection equal to or greater than BLM measures. If not, meet with the Bureau of Reclamation to encourage strengthening of their measures. 3. Change wording in the Carlsbad Draft RMPA/EIS for land use allocation to protect the 100-year floodplain of the Pecos River rather than just riparian areas. 4. Eliminate exceptions to the no surface occupancy policy for 100-year floodplains where they would cause habitat degradation for bluntnose shiners. 5. Compile conditions of approval and other pertinent information for oil and gas operations and other activities in the 100-year floodplain into a single guidance document for the ease of understanding by applicants. 6. Consider potential habitat, in addition to critical and occupied habitats, when evaluating no surface occupancy requirements or project reviews.
Roswell RMP, Roswell Field Office				
Opinion: Non-jeopardy for the Pecos bluntnose shiner, Pecos gambusia and interior least tern				

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
Pecos Bluntnose Shiner	1. Monitor bluntnose shiner populations and habitat. 2. Give priority to implementing management prescriptions for the North Pecos River ACEC and developing and implementing a strategic watershed management plan for the Pecos River from Yeso Creek to the Bitter Lake National Wildlife Refuge. 3. Continue the policy of no new oil and gas leasing on lands within the 100-year floodplain of the Pecos River unless it can be demonstrated that other mandatory protective measures will provide adequate protection. 4. Change wording in the Draft RMPA/EIS for the land use allocation to protect the 100-year floodplain of the Pecos River rather than just riparian areas. 5. Eliminate exceptions to the no surface occupancy policy for 100-year floodplains where they would cause habitat degradation for bluntnose shiners. 6. Compile conditions of approval and other pertinent information for oil and gas operations and other activities in the 100-year floodplain into a single guidance document for the ease of understanding by applicants.	None	None	None

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
Pecos Gambusia	1. Map the source and movement of subsurface water that supplies springs occupied by Pecos gambusia on the Bitter Lake National Wildlife Refuge and Salt Creek Wilderness Area. Close those lands mapped to oil and gas leasing unless mandatory protective measures ensure no aquifer contamination. 2. For leases within the mapped area, apply protective measures to prevent water contamination and monitor oil and gas activities to detect surface or subsurface accidents soon enough to avoid harm to the aquifer and the associated populations of Pecos gambusia. 3. Continue policy of no new oil and gas leasing on lands within the 100-year floodplain of the Pecos River unless it can be demonstrated that other mandatory protective measures will provide adequate protection. 4. Change wording in the Draft RMPA/EIS for the land use allocation to protect the 100-year floodplain of the Pecos River rather than just riparian areas. 5. Eliminate exceptions to the no surface occupancy policy for 100-year floodplains where they would cause habitat degradation for Pecos gambusia. 6. Compile conditions of approval and other pertinent information for oil and gas operations and other activities in the 100-year floodplain into a single guidance document for the ease of understanding by applicants.	None	None	None
Interior Least Tern	None	None	None	1. Conduct breeding season surveys in potential habitat for interior least terns. 2. If breeding birds are found, develop a management strategy to protect the habitat.

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
FARMINGTON RMP, FARMINGTON FIELD OFFICE				
Opinion: Jeopardy for the southwestern willow flycatcher, Colorado River squawfish, and razorback sucker Non-jeopardy for the Mesa Verde cactus General Conservation Recommendations: Amend the RMP as appropriate to incorporate new management direction				
Southwestern Willow Flycatcher	1. Develop a management plan for flycatchers that maps and describes occupied and potential habitat, prioritizes areas for surveys, and prescribes management for grazing and habitat improvement activities. 2. Allow no livestock grazing in occupied or unsurveyed potential habitat. 3. Allow no vegetation manipulation that would degrade flycatcher habitat or prevent improvement of habitat. Survey for flycatchers before removing saltcedar. Do not remove saltcedar if flycatchers are detected. Retain some saltcedar for structure until establishment of native species. It is suggested a programmatic Section 7 consultation on saltcedar removal be conducted.. 4. If nesting flycatchers are found, monitor nest success and parasitism. Evaluate and minimize land use practices within 5 miles of occupied habitat acting as concentration sites for cowbirds. Initiate cowbird trapping if appropriate.	None	None	1. Continue to survey potential habitat for flycatchers. Prioritize and map areas to be surveyed. Maintain and establish a database to store survey data. 2. Assess the impacts of recreational activity. 3. Summarize upland vegetative and soils trend information on areas adjacent to riparian habitat. 4. Exclude the river tracts and other riparian areas from grazing and monitor soil and vegetation response.

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
Colorado River Squawfish and Razorback Sucker	(Note: These species were covered under a 1993 Biological Opinion (Jeopardy Determination), that contained nine reasonable and prudent alternatives associated with potential contamination of the San Juan, Animas, and La Plata rivers by polycyclic aromatic hydrocarbons (PAHs). Those reasonable and prudent alternatives are modified and carried forward in this opinion.) Existing Reasonable and Prudent Alternatives 1. Sample the three rivers and upland sites (172 sites) for streamflow and collect water and sediment samples for chemical analysis. 2. Sample a population of approximately 800 federal oil/gas well sites (40 samples to be taken) at a 95 percent confidence interval for PAH types and concentrations. 3. Sample 12 soil pedons not subject to potential PAH contamination to establish a background contamination level. 4. Sample atmospheric contamination by PAHs at 12 sites. 5. Sample drainages containing greater than 100 parts per million PAHs. In addition, collect additional samples from drainages (and springs in those drainages) near facilities suspected of contributing contamination. 6. Use the results of the monitoring to immediately apply remedial action through changes in stipulations and development of BMPs. 7. Conduct long-term monitoring at sites previously sampled. 8. Ensure data are automated for statistical and spatial analysis. 9. Support the San Juan Basin Recovery Implementation Program. New Reasonable and Prudent Alternatives 1. Map, summarize, and analyze data already collected. Continue monitoring studies and forward all data and results to the USFWS. 2. Item 4 of the original reasonable and prudent alternatives is amended to use different methodology.	None	None	None

TABLE 3-8 RMP BIOLOGICAL OPINIONS				
	Reasonable and Prudent Alternatives	**Incidental Take**	**Reasonable and Prudent Measures**	**Conservation Recommendations**
Mesa Verde Cactus	None	None	None	1. Exclude portions of the habitat from grazing, and monitor to determine differences in population trend between grazed and ungrazed.

Source: Biological Opinions from USFWS on eight RMPs in New Mexico. (1997).

RECREATION

New Mexico has a growing number of visitors seeking a wide variety of recreational opportunities. The 1996 Statewide Comprehensive Outdoor Recreation Plan for New Mexico included statewide surveys to determine opinions regarding park, recreation, and open space interests and priorities. The surveys identified the most popular recreation activities of New Mexico residents to be jogging/walking, shore fishing, picnicking, hiking, sightseeing, nature viewing, swimming, developed and primitive camping, pleasure driving, and bicycling.

Recreation and tourism on public lands is one of the fastest growing segments of the state economy. Recreation and tourism is ranked as first in jobs and second in revenue by the New Mexico Tourism Department in Santa Fe. The top four reasons people visit New Mexico according to the State Tourism Department are for the open space character, cultural tourism, history of the various regions, and outdoor recreation opportunities.

Federal lands help satisfy the growing public demand for outdoor recreation. In 1996, the public made 3.2 million visits to New Mexico public lands for outdoor recreation (BLM Recreation Management Information System, 1996). The BLM-administered public lands in New Mexico offer a variety of recreational opportunities. The land includes desert mountain ranges, whitewater rivers, caves, rugged lava flows, arid desert expanses, rolling pinon-juniper wooded terrain, forested Ponderosa hillsides, sand dunes, and multi-colored badlands landscapes. Most of the uses depend on the natural and cultural features of the land. However, a great deal of recreation occurs near towns because the public lands are open for free non-commercial recreational use and are easily available.

Visitors participate in traditional activities including picnics, piñon nut harvesting, camping, recreational shooting, hunting, fishing, hiking, horseback riding, sightseeing, and risk-seeking sports such as rock climbing, mountain biking, caving, and whitewater boating. Visitors also enjoy wildlife viewing, visiting historic sites, wind sailing, and driving off-highway vehicles.

Because of this growing interest and participation in outdoor recreation, significant demands are placed on some existing recreation sites and facilities. More recreation sites and facilities, and upgrades of existing sites, are needed to satisfy the demands of a growing population.

Recreation activities are managed through the RMPs prepared by the Field Offices. Recreation projects are generally implemented in priority order. EISs or Environmental Assessments with public input are prepared before surface-disturbing site-specific recreation projects are undertaken. The BLM issues special use permits for competitive and commercial recreation activities such as motorized competitive events, outfitter and guide services, and tours.

The BLM in New Mexico has 10 high-use developed sites. They include the Wild Rivers Recreation Area, Angel Peak, Orilla Verde, Datil Well, Three Rivers, Valley of Fires, La Cueva, Dripping Springs, El Malpais National Conservation Area, and Aguirre Springs. The Wild Rivers Recreation Area is the only developed recreation site that allows livestock grazing in the picnic and camping areas.

In addition to the developed sites, recreation on public lands focuses on the following attractions:

- 3 National Wild and Scenic Rivers
- 1 National Conservation Area
- 3 National Wilderness Areas
- 7 National Recreation Trails
- 1 National Scenic Trail
- 7 National Back Country Byways
- 76 Areas of Critical Environmental Concern
- 600 Wild Caves
- 24 Adventures in the Past historic and Prehistoric Sites
- 10 Watchable Wildlife Viewing Sites
- 12 Off-Highway Recreation Vehicle Areas
- 25 Special Recreation Management Areas
- 3 recreation Pilot Fee Projects

In addition to these attractions and specific locations mentioned above, many New Mexicans use the public lands for traditional seasonal uses such as picnics, recreational shooting, hunting big game, and pinon nut harvesting. Many of these uses involve use of off-highway vehicles for access.

Motorized vehicles not travelling on designated roads or in a designated off-highway vehicle recreation area create new tracks that damage vegetation, soils, and

riparian areas. Unauthorized off- highway vehicle use and road proliferation are a concern for visitors and resource managers. Additional issues that affect recreation users and resource managers are littering, vandalism, illegal fuelwood cutting, and controlling visitor use. Attempts to improve these issues are addressed in BLM RMP Amendments, EISs Environmental Assessments, educational programs, volunteer projects, fee sites, and permits.

As with all multiple uses, there are conflicts that develop between uses. Conflicts between livestock grazing and recreational use develop from time to time. With the exception of the Wild Rivers Recreation Area, livestock have been excluded from all developed recreation sites. The facilities at the Wild Rivers Recreation Area were placed in a concentration area. Recreation visitor complaints include livestock destroying property by trampling, livestock becoming a hazard for mountain bikers using the hike/bike treadway, and creating sanitation problems at picnic and camp sites. A satisfactory solution to the multiple conflicts has not been developed at this time.

Most undeveloped recreation sites are accessible to grazing. Typical complaints by recreational users at undeveloped sites refer to livestock degradation of scenic quality, water quality, vegetative trampling, and overgrazing creating soil erosion. However, some areas that are frequently used for recreation are not grazed or are grazed lightly. For example, the Rio Grande corridor administered by BLM is closed to grazing, as are portions of the Rio Chama corridor.

WILDERNESS

In 1984, Congress designated both the Bisti and De-Na-Zin Wilderness, totalling 26,400 acres of public land in New Mexico. In 1987, Congress designated the Cebolla and West Malpais wilderness areas (WAs), totalling 102,500 acres of public land. In 1996, Congress added 16,525 acres linking the Bisti and De-Na-Zin WAs creating one larger Bisti/De-Na-Zin WA. The total acreage of New Mexico's three designated BLM WAs is 145,425 acres.

The total acreage for New Mexico BLM Wilderness Study Areas (WSAs) is 955,964 acres in 55 areas. These areas await Congressional action.

The Wilderness Act of 1964 and BLM's *Interim Management Policy for Lands Under Wilderness Review*, (1995), does not preclude livestock grazing in wilderness.

LANDS AND REALTY

In managing the public lands in the state of New Mexico, the BLM is responsible for permitting a wide variety of actions involving public lands. The realty program is responsible for granting rights-of-way, permitting temporary use areas, acquiring easements, and facilitating the acquisition or disposal of public lands. The realty program also processes land withdrawals, Recreation and Public Purposes Act applications, and land use permits. In addition to permitting activities, compliance inspections on grants and permits are conducted to ensure that any stipulations attached to permits are being adhered to. Depending upon the needs of each Field Office and the communities around them, the types and numbers of realty actions will vary across the state.

Rights-of-Way

Rights-of-way are the most common applications received in the lands program (Automated Lands and Minerals Record System, 1996). Rights-of-way, leases, and permits are granted to qualified individuals, businesses, and governmental entities for the use of public lands. Rights-of-way actions are coordinated, to the fullest extent possible, with federal, state, local, and tribal government agencies, adjacent landowners, and interested individuals and groups. All right-of-way applications are considered on a case-by-case basis and are subject to site-specific environmental analysis. Each project proposal contains mitigation measures and stipulations in order to minimize or avoid impacts that may result from surface-disturbing activities.

Rights-of-way are generally linear in nature. They may involve the transmission of oil and gas and their related products or utility-oriented lines including power, water, and phone lines or communication sites. Rights-of-way are also granted to businesses and private individuals for access roads. Table 3-9 shows the numbers of rights-of-way grants issued in 1996, the acres for those rights-of-way grants, and the field office that issued the rights-of-way grant.

Because of the topographic and land ownership constraints that exist in each field office and the BLM's efforts to minimize environmental damage from the

TABLE 3-9 RIGHT-OF WAY GRANTS ISSUED IN 1996		
Office issuing the Right-of-Way Grant	**Number of Right-Of-Way Grants issued**	**Acres of Right-of-Way Grants issued**
Farmington	169	1995
Albuquerque	8	50
Taos	14	75
Socorro	13	100
Las Cruces	31	350
Roswell	31	245
Carlsbad	270	1515
Total Statewide	536	4330

Source: USDA, BLM 1996, Automated Lands and Minerals Record System.

construction of rights-of-way, the Bureau has encouraged the placement of new rights-of-way within, or adjacent to, existing rights-of-way. As a result, de facto right-of-way corridors have been developed over the years on public lands.

In addition, each BLM field office's land use planning has resulted in rights-of-way windows or corridors being designated as the preferred location for future placement of transmission lines. Other areas have been designated as rights-of-way exclusion and avoidance areas that place restrictions or stipulations on rights-of-way in order to protect the special or sensitive resource values within those areas. Rights-of-way that exist in exclusion or avoidance areas are recognized as grandfathered, and the operation, maintenance, and renewal of those facilities is allowed to continue within the scope of the original rights-of-way grant.

Land Ownership Adjustment

There are generally three categories in which the public lands administered by the BLM can be placed. (USDI, BLM, Farmington RMP, 1988). They are retention exchange, or acquisition zones. In 1976, the FLPMA was passed. Congress declared that public lands be retained in federal ownership unless, as a result of land use planning, it was determined that disposal of particular parcels would serve the national interest. (Public Law [P.L.] 94-579, Sec.102a, Oct. 21,1976).

It was determined through the land use planning process that land ownership adjustment was an issue to be dealt with in each field office. As a result, retention zones and potential disposal and acquisition zones have been designated in planning documents.

Retention zones usually consist of consolidated blocks of public land or public land that contain resources of national, state, or regional significance. Examples of such resources are habitat for threatened or endangered species, riparian areas, wetlands, and important cultural resources (USDI, BLM, Farmington RMP, 1988). While lands in retention zones will usually remain under BLM administration exchanges within retention zones may be possible if it is clearly determined that it is in the best interest of the public (USDI, BLM, Socorro RMP, 1989.

Disposal zones generally contain tracts of isolated or scattered parcels of public land and resources that are difficult to manage. Acquisition zones are generally areas where land and resource management can be improved by consolidating public lands in contiguous

land ownership patterns. These proposed acquisition areas are often located in Special Management Areas for the benefit of wildlife habitat, watersheds, land treatment areas, grazing administration, cultural values, or wilderness and recreation areas. There are a number of ways that adjustments can be made in land ownership. The BLM determined that major land transfer actions be handled in the following order of preference: (1) transfers with the state of New Mexico; (2) private exchanges (3) Recreation and Public Purpose Act patents; (4) withdrawals to other federal agencies, (5) public sales, and (6) other methods of adjustment.

Exchanges and Sales

All exchange or sale proposals must be conducted in accordance with Sections 203 and 209 of FLPMA and the requirements of NEPA. Extensive public review is required for each proposal. Existing authorized permits, leases, rights-of-way, and licenses are considered valid existing rights, which remain with land disposed to other parties.

Although exchanges and sales may involve acreage of considerable size, at fair market value, the process is slow and complex. Therefore, few exchanges or sales are completed each year.

When an exchange is initiated, grazing permittees and lessees are given a two-year notice of cancellation of their permit or lease. If the BLM disposes of land, holders of valid permits or cooperative agreements covered by Sections 4 and 15 of the TGA are reimbursed for financial investments they have made in rangeland improvement projects on public land.

In 1994, the BLM State Director for New Mexico and the New Mexico State Commissioner of Public Lands signed a new Memorandum of Understanding establishing a comprehensive, long-term statewide land exchange program between the BLM and the State of New Mexico. The objectives of this program are: " 1) to improve the land management potential of both state and federal lands; 2) eliminate unnecessary federal and state conflicts generated by existing ownership patterns; 3) facilitate the management of state and public lands by substantially realigning the scattered state and public sections to create solid blocks or consolidated land ownership; and 4) develop procedures that are most expeditious and cost effective." (1422G910-MOU-9401).

The following are acres identified in the RMPs for disposal.

Field Office	Acres
Albuquerque	58,000
Las Cruces	340,460
Farmington	324,940
Taos	84,518
Carlsbad	220,700
Socorro	100,320
Roswell	103,670

Recreation and Public Purposes Act

The BLM, under the Recreation and Public Purposes Act (68 Statute 173; 43 United States Code (U.S.C.) 869 et. seq.) has the authority to lease or patent public land to governmental or qualified non-profit entities for public parks, building sites, correction centers, or other public purposes at less than fair market value. The BLM classifies, for purposes of the act, the amount of land required for efficient operation of the projects described in an applicant's development plan. Applications are processed under the requirements of NEPA and are subject to public review. After a Recreation and Public purposes Act application is approved, the BLM periodically reviews the areas leased or sold to ensure continued compliance with the terms of the lease or patent.

Public Land Withdrawals

Withdrawals are formal actions that set aside, withhold, or reserve federal land by statute or administrative order for public purposes (USDI, BLM, Roswell RMP, 1994). While it is BLM policy to keep public lands open for public use and enjoyment, there are conditions that warrant the removal or withdrawal of certain lands from general use. The integrity of special uses is ensured through the withdrawal of public lands. Types of withdrawals include mineral withdrawals in Special Management Areas to protect important resource values or withdrawing land for water power and reservoir sites.

Secretarial orders have been used to withdraw public lands from general use by transferring management responsibility to other Department of Interior agencies, such as the Bureau of Indian Affairs and the Bureau of Reclamation. In addition, public lands have been trans-

ferred by Executive Order to agencies outside of the DOI such as the Department of Agriculture (USDA) U.S. Forest Service (FS), the Department of Defense (DOD), and the Federal Aviation Administration (FAA). In such cases, both the lands and the responsibility for their management are transferred.(USDI, BLM, Rio Puerco RMP, 1986).

To keep as much of the public land open to the widest variety of uses, withdrawals are reviewed on a periodic basis to ensure that the reasons for the withdrawals are still valid and that only the acreage needed remains in a withdrawn status. Upon revoking or modifying a withdrawal, all or part of the withdrawn land may be returned to multiple use management.

Access

As the population of New Mexico continues to grow, so does the need to use public lands. This is especially true for people seeking recreational opportunities. Because of increasing use, problems have surfaced in areas where public lands are isolated and there is no legal access. It is difficult for the BLM to effectively manage isolated parcels of public lands where no legal access exists.

To help reduce access problems, some field offices are developing transportation plans. The plans identify where easements are needed and existing roads are present, but are not needed for efficient transportation to and across public lands. Normally only one or two easements are acquired each year for each office.

CULTURAL RESOURCES

Introduction

Culture has been defined as "the traditions, beliefs, practices, lifeways, arts, crafts, and social institutions of any community, be it an Indian tribe, a local ethnic group, or the people of the nation as a whole" (*National Register Bulletin 38*). Cultural resources are the fragile and nonrenewable products of modern, historic, and prehistoric human activity. Historic properties may be in the form of historic districts, sites, buildings, structures, or objects and are important to our understanding of prehistory and history. Traditional Cultural Properties (TCP) hold significance because of their association with cultural practices or beliefs of a living community, and are important in maintaining the cultural identity of that community. Both historic properties and Traditional Cultural Properties can be eligible for inclusion in the National Register of Historic Places. Congress has declared that "the spirit and direction of the Nation are founded upon and reflected in its historic heritage" and that "the historical and cultural foundations of the Nation should be preserved...in order to give a sense of orientation to the American people" (National Historic Preservation Act of 1966).

The BLM has legislated responsibilities to manage and protect cultural resources under laws such as the Antiquities Act of 1906, Executive Order 11593, Archaeological and Historic Preservation Act of 1974, American Indian Religious Freedom Act of 1978, Archaeological Resources Protection Act of 1979, PL 96-550 and National Historic Preservation Act of 1966. Sections 106 and 110 of the National Historic Preservation Act require federal agencies to inventory and evaluate historic properties on federal land and ensure that they are taken into account before authorizing any federally funded or permitted undertaking. The act and its implementing regulations require that the BLM identify and evaluate any historic properties within a project's area of effect and consult with the State Historic Preservation Officer (SHPO) and Advisory Council on Historic Preservation (ACHP) prior to approval. The BLM has a Programmatic Memorandum of Agreement with the New Mexico SHPO and ACHP under which projects can be approved prior to individual consultation if it has been determined that they will have no effect on historic properties that are included in or eligible for inclusion in the National Register of Historic Places. If a historic property cannot be avoided, BLM consults with SHPO to agree on measures to mitigate adverse effect to the site. A proposed nationwide Programmatic Agreement between BLM and ACHP may soon replace the existing statewide Programmatic Agreement. Under the new national Programmatic Agreement, Section 106 compliance of a routine and non-controversial nature would be handled internally without case-by-case review by the ACHP or SHPO. Before this agreement can go into effect, BLM will be obligated to establish an internal Preservation Board, revise BLM Cultural Resource Management manuals and handbooks, develop state-specific BLM/SHPO protocols, train field managers and staff, and certify offices to operate under the revised procedures.

Of the 13,500,000 acres of public land in New Mexico, approximately 1,015,000 acres, or 7.5 percent, have been inventoried for archaeological and historic properties. To date, 25,947 sites have been recorded on BLM land in New Mexico.

Overview

The earliest period of human occupation in New Mexico is referred to as the Paleoindian Period, dating to at least 10,000 years B.C. The last ice age was receding at that time and the climate was cooler and wetter. Small, highly mobile groups of people travelled continually in search of game, which was procured by various methods including killing or disabling large herding animals, such as bison, by driving them into arroyos or over cliffs. Subsistence strategies and technology from this period were fairly uniform, with an emphasis on procuring large, now extinct, game species such as mammoth and an extinct form of bison. More than 100 archaeological sites from this period have been recorded on BLM-administered land in New Mexico.

The second broad time period is referred to as the Archaic Period, from about 6,000 B.C. to 0 A.D. The climate was becoming warmer and drier, population was increasing, and the small, still highly mobile bands began exploiting a much wider variety of food resources, with an increasing dependance on plant foods. Grinding stones or "manos" appeared in the stone tool assemblage and projectile point styles became more regionally differentiated. During the second half of the period agriculture was introduced, probably from Mexico, but it did not become a major focus until much later. More than 1,500 Archaic sites have been recorded on BLM-administered lands in New Mexico to date.

Population expansion, settled communities, increased dependence on cultivated crops, above ground architecture, pottery, and the bow and arrow are all characteristic of the ensuing Pueblo Period. Many dramatic changes in settlement and subsistence patterns occurred throughout this period, lasting from about 0 A.D. to Spanish contact in the late-sixteenth century. Local differentiation continued and became more marked. The Anasazi Culture in northwestern New Mexico is renowned for its magnificent masonry architecture and the Mogollon heartland in southwestern New Mexico is best known for its beautiful Mimbres bowls. In the eastern part of the State a lifestyle more similar to that of the Archaic Period persisted well into the nineteenth century. To date more than 9,000 sites from the Pueblo Period have been recorded on BLM land in New Mexico.

After about 1200 A.D., Pueblo groups shifted drastically in different regions but persisted. Athapaskan groups (ancestors of modern Navajos and Apaches) moved into the area, and the Spanish arrived in the late-sixteenth century, bringing domestic animals such as horses, cattle and sheep, the use of which was soon adopted by resident Native American populations. Anglo/Euro-American homesteaders settled in the nineteenth and early twentieth centuries. The entire time from European (Spanish) contact until 50 years ago is referred to broadly as the Historic Period and includes sites from Spanish colonial settlements, post-contact Native American sites, trails such as the Santa Fe and Camino Real, Civil War forts and battlefields, early farming and ranching sites, early industrial sites, and even Cold War practice areas and targets.

Today, as communities in the United States become more and more homogeneous, New Mexico's multicultural heritage stands out as a unique cultural landscape and plays an important role in attracting tourists to the state. New Mexico was settled first by Indians, then by Hispanics, and finally by Anglo peoples. Current distribution of the three ethnic populations tends toward areas of single-group dominance resulting from the sequence of occupation, economic bases of the different groups, and past solutions to conflict between groups. This separation of cultures has provided for the continuance and evolution of distinct traditions of language, art, culture and religion. Five out of the top nine reasons tourists visit New Mexico are related to cultural resources (including museums, Indian Reservations, performing arts, historical and archaeological sites, and festivals and fairs), accounting for a large percentage of New Mexico's $2.2 billion a year tourism industry (Office of Cultural Affairs 1996).

PALEONTOLOGY

New Mexico has a fossil record that includes almost all of the geologic periods from the Cambrian (500+ million years ago) to the Recent (the last 10,000 years), and nearly every imaginable ancient environment. Many New Mexico fossil deposits are of national and international importance, and close to 1,000 different kinds of fossils were originally made known to the scientific world from specimens first found in New

Mexico. Many of them still have not been found anywhere else. Study of these fossils plays an important role in subdisciplines of the field of paleontology such as paleobotany, paleoecology, paleobiogeography and biostratigraphy. (Mike O'Neill, personal comm. 1996.)

Fossil deposits on public lands can be subject to damage and destruction as a result of federally funded and permitted development, as well as from off-road vehicle use and unauthorized collection. BLM's policy is to locate, evaluate, and classify paleontological resources on public land and give them full consideration in all aspects of public land management. BLM also has responsibility for facilitating appropriate scientific and educational uses of paleontological resources. These responsibilities are mandated in FLPMA and NEPA. At the field office level, paleontology is managed under various programs such as cultural resources, geology, and recreation.

MINERAL RESOURCES

Mineral resource extraction is a major use of the public lands in New Mexico. Exploration, development, and production of minerals occurs either under lease, by sale (mineral materials), or by location (mining claims). Leasable mineral activity is concentrated in the southeastern and northwestern quadrants of the state. Mineral material sales occur throughout the state at scattered sites that are usually situated near most towns and cities in New Mexico, especially areas where cities are expanding rapidly. One exception is the significance and number of caliche pits in the southeast part of the state associated with oil and gas development. The hard rock minerals claims, by the nature of occurrence of the minerals, are generally located in the mountainous regions of the state. There are nearly 10,000 active mining claims on public lands in New Mexico.

The primary salable minerals are caliche, sand and gravel, building stone, and decorative rock. These minerals are developed by use permits and sold by weight or unit volume from quarries or pits. There are approximately 1,200 caliche pits in southeastern New Mexico, of which 300 are actively used. On average, these pits may cover from 1 to 5 acres, although some are over 15 acres in size. Sand and gravel operations are the next most common, located near population centers and used for construction and paving aggregate.

The majority of active locatable mining operations are on patented claims which are no longer in the public domain. The activity on public land claims consists of a few dozen exploratory drilling operations, and recreational collecting and panning. These "small miner" operations may affect up to 100 acres of public land annually. There are public lands involved in the expansion of four copper mines in the southwestern part of the state. While less than 50 acres of BLM land are presently impacted within open pit mining, future expansion will involve more than 200 acres of BLM land inside pit boundaries and more than 1,600 acres for tailings disposal, haul roads, and waste rock disposal areas. Although considered a dormant activity, there are a few uranium claims on public land in the McKinley County area.

The primary leasable minerals are oil and gas, coal, and potash. During calendar year 1995, the federal government collected a little over $236.5 million in leasable mineral royalties, rents ,and other revenue. Of this total, a little over $119 million was disbursed to the State of New Mexico (USDI, Minerals Management Service State Minerals Summaries 1995).

Oil and Gas

A total of 33,829 oil and gas wells have been drilled on public land in New Mexico. Of these, 23,240 are currently producing. There are 10,562 oil and gas leases, of which 6,022 are producing leases covering 3,640,000 acres. Oil and gas drilling activity varies from year to year depending on various factors such as market economics, equipment availability, and the status of reservoir plays. Based on filings over the last 10 years, an average of just under 900 permits to drill are received annually by BLM field offices for federal lands in New Mexico. The amount of land affected by oil and gas development may vary from about ¾ acre to as much as 5 acres per well depending on the depth of the well and the length of the access road. Most well locations are less than 2 acres. During 1995, a little over 953 billion cubic feet of natural gas, 27.6 million barrels of oil, and 9.2 billion cubic feet of carbon dioxide were produced from federal leases in New Mexico. The total sales value of this production was approximately $1,579,000,000 (USDI, Minerals Management Service Minerals Revenue, 1995).

Coal

There are 11 federal coal leases in Northwestern New Mexico, of which six are currently producing. These leases are being developed by five active coal mines potentially affecting 11,897 acres of public land. During 1995, 6,242,364 short tons of coal were produced from these leases, worth about $184,000,000. There are two federal coal leases in western New Mexico covering 6,440 acres. A mine permit to develop those two leases is currently pending (USDI, Minerals Management System Minerals Revenue 1995).

Potash

The potash leases in southeast on New Mexico are being developed by five underground mining operations. There are two inactive and two abandoned mines in this potash area. While the mining operations themselves are underground, tailings ponds, mills and ancillary facilities at the mines occupy up to several hundred acres at each site. During 1995, about 762,000 short tons of sylvite and 568,000 short tons of langbeinite worth 109.7 million dollars were produced from the potash leases. Also, about 222,000 tons of sodium and sulfur, worth about $700,000 were produced from leased federal land (USDI, Minerals Management Service Minerals Revenue 1995).

NATIVE AMERICAN CULTURAL ISSUES

Certain locations on the landscape may be important to Native American groups for a variety of reasons including collection of traditional plants and minerals, hunting, and the presence of sacred sites and shrines. Another way in which places can be important is for instruction. Places serve as reminders of people and events from the past, tales of which are used for instruction and admonition. Even the places themselves are considered to instruct, admonish, and impart wisdom once the stories have been learned.

A number of laws protect Native American concerns and require consultation with Native American tribes under certain circumstances. These laws include NEPA, the American Indian Religious Freedom Act, the National Historic Preservation Act, Native American Graves Protection and Repatriation Act NAGPRA, and Archaeological Resource Protection Act. Topics of consultation may include potential for adverse effect on historic properties (including Traditional Cultural Properties), policies or actions which could affect free practice of traditional religion, disposition of human remains, associated funerary objects and sacred objects, and general concerns about the effect of a proposed project on the environment.

ECONOMIC CONDITIONS

This section describes the current economic situation of the State of New Mexico. As a part of the entire New Mexico economy; the range livestock sectors are a very minor portion; however, when New Mexico is considered as a group of economies (counties), the number of agricultural economies are greater than the number of urban economies. The total level of economic output for New Mexico is approximately $60 billion, including the $18 billion household sector. The impact from changes to the range livestock industry will be negligible to the urban economies, but highly imposing to the rural counties with large acreage of BLM land. Land ownership by County is shown in Table 3-10.

This project has no affect on the Payments in Lieu of Taxes (PILT) to the counties, however, a table showing the latest payments has been included in the EIS. PILT payments are determined on a formula basis, with the number of federal acres constituting the principal determining variable. The logic behind PILT payments is that federal lands within county boundaries are not part of the county's tax base. Therefore, the county should be compensated for lost revenue opportunities. This EIS is not considering changes of ownership of land within the county. Therefore, there is no difference between the current situation and the alternatives. The livestock tax base will change with the alternatives, which are incorporated in the State/Local government sector of the Input-Output model used for this analysis. The PILT to the counties is shown in Table 3-11.

An Input-Output (I-O) model developed by (NMSU) Department of Agricultural Economics and Agricultural Business was used to determine the current economic conditions in New Mexico, estimate the changes that would occur directly to the range livestock industry, and estimate the total impact to the state's economy that would occur with implementation of the rangeland management alternatives presented in the EIS on BLM lands. The following describes an input-output model and the methodology used in development of the New Mexico models.

An Input-Output model is a mathematical representation of the purchases and sales patterns within a region or

TABLE 3-10

LAND OWNERSHIP OF NEW MEXICO BY COUNTY, 1994

County Name	Square Miles	Acres	BLM	Percent	USFS	Percent	Total Federal	Percent	State	Percent	Indian	Percent	Private	Percent
Bernalillo	1,166	746,240	12,820	1.72	75,764	10.15	154,590	20.72	32,201	4.32	222,527	29.82	336,922	45.15
Catron	6,928	4,433,920	592,907	13.37	2,222,126	50.12	2,799,004	63.13	533,037	12.02	0	0.00	1,101,879	24.85
Chaves	6,071	3,885,440	1,175,698	30.26	40,332	1.04	1,265,500	32.57	722,473	18.59	0	0.00	1,897,467	48.84
Cibola	4,540	2,905,600	399,608	13.75	322,060	11.08	656743	22.60	229,746	7.91	689,551	23.73	1,329,560	45.76
Colfax	3,757	2,404,480	1,215	0.05	70,061	2.91	15,740	0.65	278,189	11.57	0	0.00	2,110,551	87.78
Curry	1,406	899,840	0	0.00	0	0.00	3,862	0.43	60,667	6.74	0	0.00	835,311	92.83
DeBaca	2,325	1,488,000	35,377	2.38	0	0.00	90,848	6.11	234,570	15.76	0	0.00	1,162,582	78.13
Dona Ana	3,807	2,436,480	1,122,974	46.09	0	0.00	1,821,515	74.76	286,910	11.78	0	0.00	328,055	13.46
Eddy	4,182	2,676,480	1,403,002	52.42	135,013	5.04	1,648,563	61.59	477,730	17.85	0	0.00	550,187	20.56
Grant	3,966	2,538,240	292,249	11.51	885,502	34.89	1,294,877	51.01	367,685	14.49	24,000	0.95	851,678	33.55
Guadalupe	3,031	1,939,840	49,584	2.56	1,752	0.09	120,053	6.19	117,810	6.07	0	0.00	1,701,977	87.74
Harding	2,126	1,360,640	603	0.04	0	0.00	70,506	5.18	344,981	25.35	0	0.00	945,153	69.46
Hidalgo	3,446	2,205,440	740,665	33.58	76,589	3.47	893,679	40.52	354,431	16.07	11,000	0.50	946,330	42.91
Lea	4,393	2,811,520	427,854	15.22	0	0.00	466,952	16.61	873,748	31.08	0	0.00	1,470,820	52.31
Lincoln	4,831	3,091,840	524,717	16.97	398,744	12.90	1,103,482	35.69	301,841	9.76	0	0.00	1,686,517	54.55
Los Alamos	109	69,760	0	0.00	30,036	43.06	64,448	92.39	0	0.00	0	0.00	5,312	7.61
Luna	2,965	1,897,600	746,547	39.34	0	0.00	786,150	41.43	534,951	28.19	10,670	0.56	565,829	29.82
McKinley	5,449	3,487,360	231,251	6.63	190,200	5.45	564,580	16.19	183,974	5.28	2,158,410	61.89	580,396	16.64
Mora	1,931	1,235,840	7,561	0.61	100,993	8.17	107,642	8.71	81,638	6.61	0	0.00	1,046,560	84.68
Otero	6,627	4,241,280	939,568	22.15	563,681	13.29	2,886,626	68.06	449,908	10.61	460,255	10.85	444,491	10.48
Quay	2,875	1,840,000	819	0.04	0	0.00	14,535	0.79	237,714	12.92	0	0.00	1,587,751	86.29
Rio Arriba	5,858	3,749,120	559,004	14.91	1,413,169	37.69	1,953,173	52.10	108,530	2.89	646,932	17.26	1,040,485	27.75
Roosevelt	2,449	1,567,360	7,706	0.49	0	0.00	38,517	2.46	211,140	13.47	0	0.00	1,317,703	84.07
Sandoval	3,710	2,374,400	526,289	22.17	384,434	16.19	987,297	41.58	80,192	3.38	650,380	27.39	656,531	27.65
San Juan	5,514	3,528,960	801,366	22.71	0	0.00	1,039,281	29.45	168,416	4.77	2,110,692	59.81	210,571	5.97
San Miguel	4,717	3,018,880	48,644	1.61	340,451	11.28	394,215	13.06	173,808	5.76	0	0.00	2,450,857	81.18
Santa Fe	1,909	1,221,760	72,124	5.90	245,046	20.06	336,157	27.51	85,857	7.03	79,548	6.51	720,198	58.95
Sierra	4,181	2,675,840	855,540	31.97	383,674	14.34	1,830,310	68.40	361,195	13.50	0	0.00	484,335	18.10
Socorro	6,647	4,254,080	943,131	22.17	619,549	14.56	2,318,458	54.50	609,854	14.34	56,680	1.33	1,269,088	29.83
Taos	2,203	1,409,920	219,733	15.58	521,984	37.02	733,325	52.01	97,144	6.89	62,288	4.42	517,163	36.68
Torrance	3,345	2,140,800	19,537	0.91	153,881	7.19	207,787	9.71	299,805	14.00	16,300	0.76	1,616,908	75.53
Union	3,830	2,451,200	758	0.03	0	0.00	58,725	2.40	441,946	18.03	0	0.00	1,950,529	79.57
Valencia	1,068	683,520	23,271	3.40	15,865	2.32	43,291	6.33	22,000	3.22	160,000	23.41	458,229	67.04
New Mexico	121,365	77,673,600	12,782,122	16.46	9,190,906	11.83	26,770,431	34.47	9,364,091	12.06	7,359,233	9.47	34,177,925	44.00

Sources: U.S. Department of Commerce. 1994. 'County and City Data Book 1994'. Government Printing Office, Washington D.C.
Diemer, Joel A. and Alvarez, Rossana C. 1990. 'New Mexico Land Use, By County 1982 - 1988'. Agricultural Experiment Station Research Report 644, College of Agriculture and Home Economics, New Mexico State University. Las Cruces, NM
Williams, J.L. 1986. "New Mexico in Maps.' P 261. University of New Mexico Press, Albuquerque, New Mexico
New Mexico Stockman, 1994. Directory of New Mexico Agriculture. pp. 172-254.

TABLE 3-11 PAYMENT IN LIEU OF TAXES FISCAL YEAR 1998 NEW MEXICO	
COUNTY	**PAYMENT**
Bernalillo	$ 78,447
Catron	$135,359
Chaves	$862,022
Cibola	$594,818
Colfax	$ 51,449
De Baca	$ 29,317
Dona Ana	$861,402
Eddy	$952,074
Grant	$726,599
Guadalupe	$ 42,995
Harding	$ 41,257
Hidalgo	$259,795
Lea	$302,413
Lincoln	$436,112
Los Alamos	$ 25,905
Luna	$532,492
McKinley	$297,391
Mora	$ 80,663
Otero	$950,398
Quay	$ 1,293
Rio Arriba	$805,720
Roosevelt	$ 7,647
San Juan	$617,775
San Miguel	$282,331
Sandoval	$656,496
Santa Fe	$227,415
Sierra	$349,715
Socorro	$440,358
Taos	$536,551
Torrance	$124,403
Union	$ 40,937
Valencia	$ 23,785
TOTAL	$11,375,334

Source: BLM files

economy. It is essentially a "map" of the economic linkages among industries within an economy and between these industries and the rest of the world. This map shows the interdependence of the Industries within an economy and quantifies impacts from external changes to the economy. With this information it is possible to accomplish the following:

- describe the present economic situation of an industry by tracing the current dollar flows though the economy and

- forecast the initial effects of external changes in an industry by modifying the specifications of the model, and observing the resulting changes in the overall economy. The NMSU Department of Agricultural Economics and Agricultural Business, in cooperation with University of Wyoming and the University of Nevada Cooperative Extension Service, developed an Input-Output model for the state of New Mexico and Chaves County. The original model, developed at the University of Wyoming, was adapted from Micro IMPLAN tables (Olson and Scott 1994), a widely used national model. The model for NMSU was customized with New Mexico data to adequately define the spending patterns of New Mexico industries. The agriculture industries were expanded to include of all major crops produced in the state and provide a comprehensive description of agriculture. Each agricultural sector's 1992 sales and expenditures were based on the three-year average (1991 through 1993) of NMSU crop (Libbin and Hawkes 1991, 1992, 1993) and livestock (Torell and Hawkes 1991, 1992, 1993) cost and return estimates and New Mexico agricultural statistics (New Mexico Agricultural Statistics Service 1991, 1992, 1993). In 1997 the coal, oil and gas, and fed cattle sectors were updated with primary data for the state of New Mexico. The values of production and expenditure data were used to develop direct requirement coefficients for the model. Employment and income data from the U.S. Commerce Department's Bureau of Economic Analysis (BEA 1992), were used to calculate sector employment and income for all standard industrial classifications included in the model.

Direct (primary) economic influence can be used to predict indirect and induced (secondary) economic effects using the New Mexico Input-Output model. These influences have a ripple effect throughout the economy of New Mexico, caused by the interactions between industries, secondary spending, and the interdependence of the industries.

In analyzing the economic situation of federal forage AUMs, a value of production per AUM is required as an input into the model as a direct influence. In estimating the value of production per AUM, it was determined that a single year would misrepresent the effects to the economy. Since cattle prices follow a cycle it was determined that a 12-year (1985 through 1996) average of values per AUM would encompass a full price cycle between two lows in the cycle (Figure 3-1). The value of production per AUM and the number of AUMs were run in the NMSU New Mexico Input-Output model to predict the total economic losses to the New Mexico economy. In 1992, the cattle industry fared well, it was an extremely wet year, (Figure 3-2) and cattle prices were at a high. If this was the year used as input data, the economic situation would be overestimated. The other extreme would be to use 1996, when New Mexico was in a drought (Figure 3-2) and cattle prices were at a low (Figure 3-1). This year would underestimate the economic situation. Although sheep and goats do not follow the same price cycle as cattle, values per AUM and numbers of AUMs were used for the same 12 year period. Because there is a greater number of cattle AUMs than sheep and goat AUMs, the cattle cycle was used. In 1992[3] the range cattle[4] industry directly provided almost $314 million in economic activity to the state of New Mexico, including $19 million in personal income and 2,632 Full Time Equivalents (FTEs)[5]. This industry provided total (direct and indirect) economic activity of over $620 million. of which almost $97 million was in personal income from 5,500 FTEs. The sheep[6] industry directly provided $10 million in economic activity for the state of New Mexico, which included $976,000 in personal income and 299 FTEs. Indirectly the industry provided

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[3]1992- Base year for the New Mexico Input-Output Model, an average of 1991, 1992, 1993.

[4]Range Cattle Industry - includes beef cow - calf and yearling operations. Does not include dairy cattle, sheep and goats, or fed cattle (feedlots).

[5]FTE - Full time equivalent - One full time, 40 hours per week, job.

[6]Sheep- includes sheep and goat operations.

FIGURE 1

CATTLE PRICES 1950 - 1997

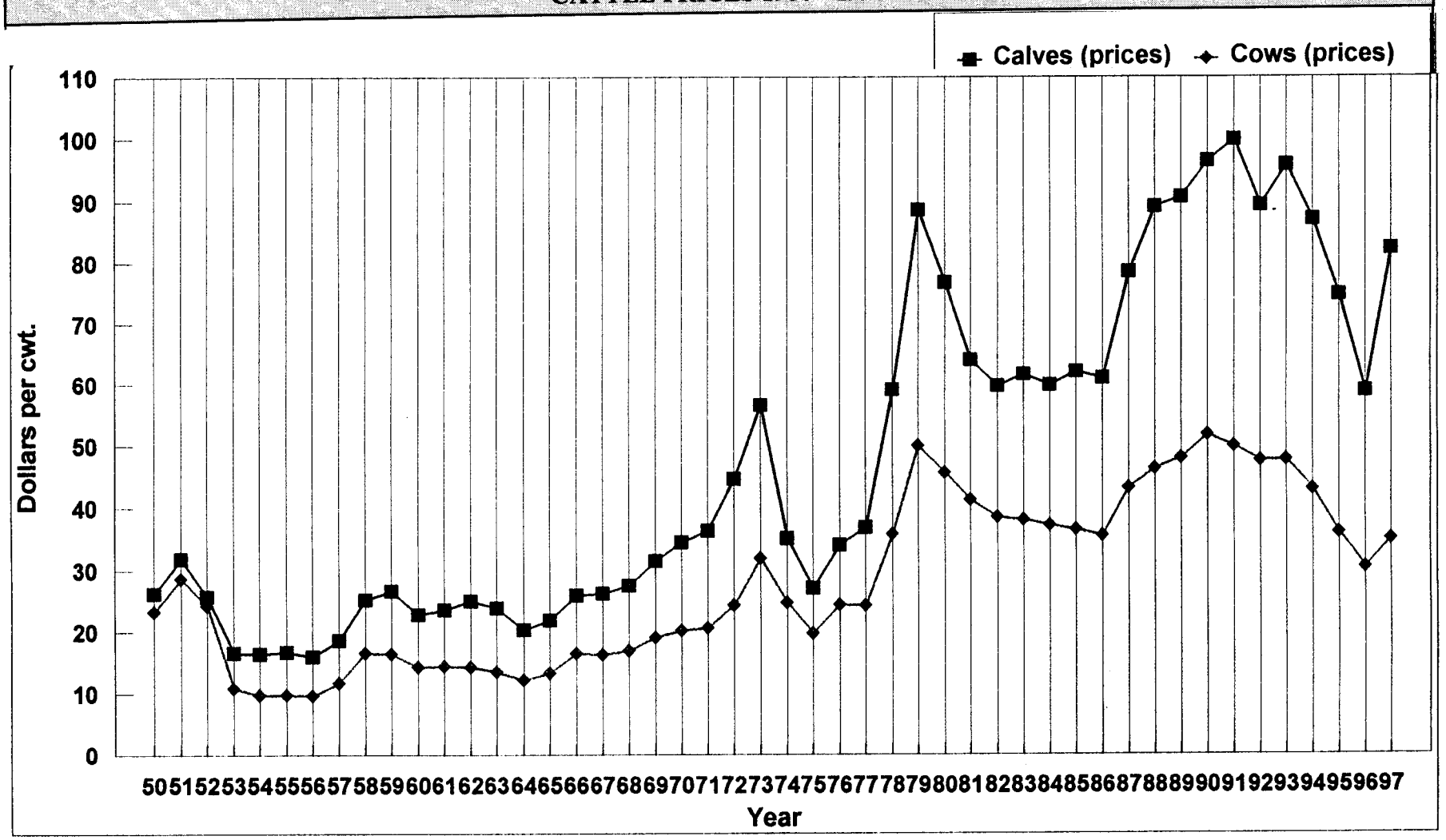
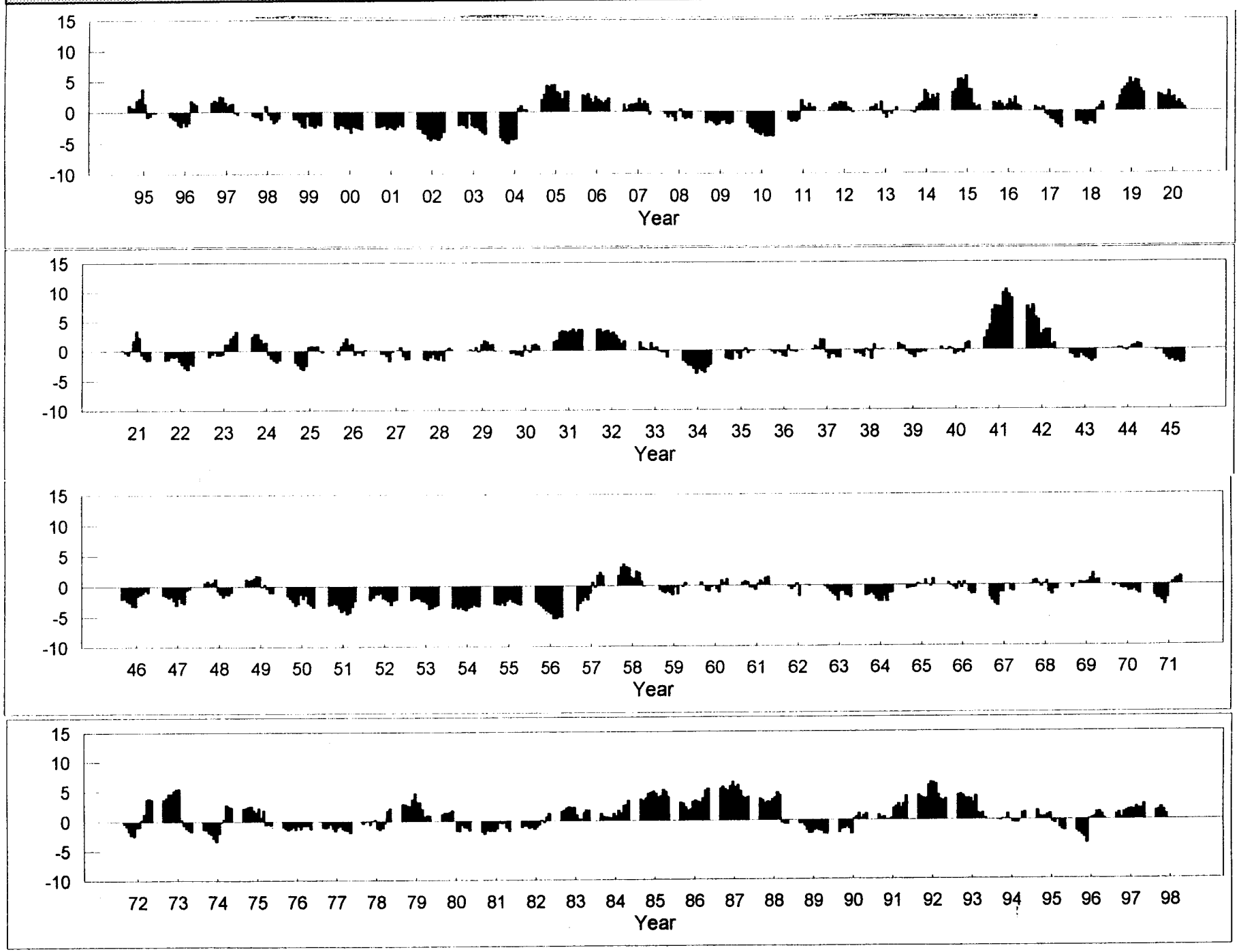


FIGURE 3-2
PALMER DROUGHT SEVERITY INDEX (PDSI)
NEW MEXICO



$22 million in economic activity, $3.5 million in personal income and 192 FTEs.

HUMAN DIMENSION

Human dimension describes the financial, social and cultural components that are important for NEPA assessment. The declaration in the National Environmental Policy Act (section 101(a)) states:

> The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans. **(Emphasis added)**

The New Mexico State University natural resources program has developed a triangle, (Polley, 1996) that represents three necessary requirements for properly functioning conditions: (1) physical resources (water, soil, air), (2) biotic resources (plants and animals), and (3) the human dimension (management, communities, infrastructure). The human dimension includes the financial capital, science, general public involvement, coordination with state, local, tribal and federal governments, professional management, and the participation of the occupiers and users of the land necessary for achieving natural resource goals described in NEPA.

Recent research has focused attention on the need to incorporate human dimension as a key component to meeting properly functioning resource conditions. (Box, 1993, Finch and Tainter, 1993 and Kennedy, Fox, and Osen, 1994). This is especially true because the professional natural resource manager for BLM uses a combination of direct and indirect management of the resources. For example, resource managers may study and monitor the conditions of the land as they change over time. They may also directly participate in activities such as land treatments. However, they often depend on indirect management. For example, a ranchers may be relied upon to provide labor and capital to manage their use of the land in an appropriate fashion to meet land management objectives.

Financial, Social and Cultural Conditions

Financial

Financial Conditions for a Properly Functioning Rangelands:

Allen and Hokstra, (1994) state that "...a stable and adequate economic base is a requirement for sustainability" (for reaching a properly functioning healthy rangeland condition). As a business, the public land rancher looks at the net return on his/her investment, according to resource economist John Nalivka, (1993):

The net return to the ranchers are the result of combining all of the resources (feed, water, capital, and management) and because it results in an economic return to the ranchers, their long term incentive is to enhance the total productivity of these resources and use them more effectively. The management of these resources in an environment of risk and uncertainty to produce a marketable product at a competitive cost is the essence of determining the value of the ranch. In other words, the economic condition of the business which is dependent upon scientific condition and sustained yield of the renewable grazing resource determines the economic value of the ranch. The economic well-being of each ranch subsequently contributes to the economic health of the industry and the industry contributes to the economy of the county, state and Western U.S. as a whole. A secure and optimal balance of forage, water, market access, and capital access is the key to the long term viability of any operation more specifically, the public land ranchers, where the major consideration of range livestock operations and their ability to manage risk and maintain economic viability is access to and the ability to utilize a forage base which is well balanced with regard to availability, quality, and seasonal use.

In short, as the range improves in productivity with the help of the ranchers, the ranchers should re-establish their profitability and pay the variable costs. Once the profitability is achieved, the rancher will invest capital to improve the healthy ranges. The improved healthy ranges will provide a more secure environment for family and community stability. With improved security and stability, the rancher will have greater incentive to further invest in public land improvements.

Historically "federal land policies have encouraged development and investment by the grazing permittees and lessees. The Taylor Grazing Act (TGA) provided enhanced stewardship, financially stable communities and livestock industry" (Fowler, 1994). The Act's key features provide for security and tenure for ranchers and establishment of a long term carrying capacity attached to base water or land. These features encourage investment and commitment on the part of the ranchers. In return, TGA states that "Grazing privileges recognized and acknowledged shall be adequately safeguarded, but the creation of grazing district or the issuance of a permit pursuant to the provisions of this Act shall not create any right, title, interest, or estate in or to the land".

Financial Environment

The section contains an analysis of the current financial conditions of typical BLM dependent ranches in the State of New Mexico that may be affected by the alternatives. The purpose of this analysis was to establish a base line for comparison. (see Appendix D).

Four regions of the State were studied for the purpose of this analysis: Central Mountain Region; Northwest Region; Southeast Region; and Southwest Region. The following sections contain a summary of the analysis by region. As used in this document the term head means Animal Unit Yearlong (AUY) - the forage required to sustain a 1,000 lb animal or equivalent for a full year.

Central Mountain Region: There are four typical ranch size categories in this region: extra-small (53 head); small (133 head); medium (284 head); and large (485 head). These ranches are composed of mixed ownership of grazing land including: private land, New Mexico State Trust Land lease, USFS permit, and BLM permit or lease. None of the typical ranches in this region is more than 27 percent dependent on BLM grazing, with some as little as 12 percent dependent on BLM grazing.

Under current conditions, based on the 10-year-average budgets, all typical ranches in the region are meeting and are above the Financial Threshold for Production (Table 3-12). The extra-small ranch is the only size that does not meet the Financial Threshold for Risk (Table 3-13). It could not, under current conditions, increase production to meet this threshold. An extra-small ranch does pay at least half if its fixed overhead costs from ranching income. The small ranch pays a very small portion of the overhead, while the medium and large ranches pay overhead, with some residual return to investment.

Northwest Region: There are four typical ranch size categories in this region: extra-small (20-21 head); small (109 head); medium (301 head); and extra-large (657 head). These ranches are composed of mixed ownership of grazing land including: private land, New Mexico State Trust Land lease, USFS permit, and BLM permit or lease. The dependency on the BLM permit grazing ranges from a low of 23 percent dependent (extra-large) to a high of 68 percent (extra-small).

Under current conditions, based on the 10-year-average budgets, all typical ranches in the region are above the Financial Threshold for Production (Table 3-12). Only one ranch (extra-large) is currently above the Financial Threshold for Risk (Table 3-13). The typical small ranch could not, under current conditions, meet the Financial Threshold for Risk. The typical small ranch does pay an average of 61 percent of its fixed overhead costs from ranching.

Southeast Region: There are five typical ranch size categories in this region: extra-small (53 head); small (102 head); medium (260 head); large (473 head); and extra-large (741 head). These ranches are composed of mixed ownership of grazing land including: private land, New Mexico State Trust Land lease, and BLM permit or lease. The dependency on the BLM permit grazing ranges from a low of 45 percent dependency (extra-small, medium, large and extra-large) to a high of 58 percent dependency (small).

Under current conditions, based on the 10-year-average budgets, all typical ranches in the region are above the Financial Threshold for Production (Table 3-12). Three of the five ranches (medium, large, and extra-large) are also currently above the Financial Threshold for Risk (Table 3-13).

Table 3-12 Current Condition Summary Affected Ranches Meeting Financial Threshold for Production				
	Central Mountain Region	Northwest Region	Southeast Region	Southwest Region
Extra-small ranches	Meeting	Meeting	Meeting	Meeting
Small ranches	Meeting	Meeting	Meeting	Meeting
Medium ranches	Meeting	Meeting	Meeting	Meeting
Large Ranches	Meeting	--n/a--	Meeting	Meeting
Extra-large ranches	--n/a--	Meeting	Meeting	Meeting

Source: Southwest Center for Resource Analysis Report - prepared by Rita D Harbison, M.B.A. -WNMU.

Table 3-13 Current Condition Summary Affected Ranches Meeting Financial Threshold for Risk				
	Central Mountain Region	Northwest Region	Southeast Region	Southwest Region
Extra-small ranches	Not Meeting	Not Meeting	Not Meeting	Not Meeting
Small ranches	Meeting	Not Meeting	Not Meeting	Not Meeting
Medium ranches	Meeting	Not Meeting	Meeting	Not Meeting
Large Ranches	Meeting	--n/a--	Meeting	Not Meeting
Extra-large ranches	--n/a--	Meeting	Meeting	Not Meeting

Source: Southwest Center for Resource Analysis Report - prepared by Rita D Harbison, M.B.A. -WNMU.

Southwest Region: There are five typical ranch size categories in this region: extra-small (21 head); small (100 head); medium (231 head); large (425 head); and extra-large (1,264 head). These ranches are composed of mixed ownership of grazing land including: private land, New Mexico State Trust Land lease, and BLM permit or lease. The dependency on the BLM permit grazing ranges from a low of 62 percent dependency (small, large, and extra-large) to a high of 64 percent dependency (medium).
Under current conditions, based on the 10-year-average budgets, all typical ranches in the region are above the Financial Threshold for Production (Table 3-12). None of the five typical ranches is currently meeting the Financial Threshold for Risk (Table 3-13).

Summary

Under current conditions, all 16 ranch size categories not meeting the standard are meeting the Financial Threshold for Production, while seven of these ranch size categories are also currently meeting the Financial Threshold for Risk.

Local governments and schools are supported by the tax base created from the private land portions of the ranch, livestock taxes, fees and expenses, maintenance and capital improvements.

Social

This section presents an overview of the social trends and conditions of New Mexico and the public lands.

Social Conditions for Properly Functioning Rangelands

There are social considerations that are prerequisites for the human dimension of properly functioning rangelands. These social considerations are population growth and urban interface.

Population Influx and Changing Demographics

New Mexico and the western intermountain region are experiencing unprecedented population in-migration and economic growth. The in-migration is due part to the growing number of retirees moving into New Mexico. There will be 650,000 more New Mexicans in 2015 than in 1995...This is the equivalent of adding the combined current populations of Albuquerque, Las Cruces, Santa Fe and Roswell. (Condrey and Guillen, 1996).

The population influx into rural communities is increasingly driven by globalization of the economy and the resultant disconnect between income and lifestyle. That is to say, many former urbanites are now moving into small western communities where they can work out of their homes (Werther, 1997 and Hecox and Ack, 1996). The in-migration can have significant social and economic effects on small communities, driving up the cost of living and pushing affordable homes beyond the reach of current and future low to moderate income families (Gevanious, 1997, Herbert, 1996).

Findings of a New Mexico growth management study, commissioned by New Mexico legislature, reinforces the costs and benefits to New Mexico as:

> Benefits of growth include higher tax revenues, more jobs, new businesses, and increased economic growth...Baby boom generation has been influential in driving the demand for schools, housing and shopping, plus the infrastructure to serve them...Growth varies widely throughout New Mexico, as does its effects. Some communities grow with their landscapes, cultures, economies and overall character will change dramatically. How a community is fiscally [and environmentally] affected is often contingent upon the rate, location and type of growth...The effects on New Mexico brought by high growth rates often collide with growing desire to protect the state's assets such as water, unique character and way of life...(Condrey and Guillen, 1996).

Recent studies underscore this shift in population, as well as the related effects on natural resources, environmental quality, human settlements and infrastructure, necessary for sustainability. (Hecox and Ack, 1996, Farley, 1995, Wright, 1993, Condrey and Guillen, 1996).

"The demise of the western landscape is taking place because of the piecemeal subdivision and development of fields, floodplains, and forests ... a few acres at a time" and, while the "destruction of ecological and open space resources is tragic enough,...assaults on "place"...fracture the union of land and culture [with]

equally grave implications. (Wright, 1993). These implications are clear enough to the people who face the problems of a region reeling in sweeping political and economic change. Once the communities and individuals whose values stand as the fundamental beliefs of America's best find themselves displaced and disinherited from the land they hold sacred, we are left with the question: "If we are reflections of the places where we live, what will become of us if we exist in a landscape of fear, pollution, monotony, and lost promise? (Wright 1993).

Population Growth and Public Lands

Human settlement continues to affect the biological, physical and human dimensions of ecosystems. The population growth will continue to occur on the urban fringe of existing small towns and cities in New Mexico. The rate and magnitude of urban growth and its effects on healthy public lands varies according to the size of the human settlement and the proximity between urban land interface and public lands. The areas adjacent to this growth experience the most significant adverse effects to public lands (Steiner, 1997 and Werther 1997).

Urban Interface Effects on Public Lands

The urban interface is the zone adjacent to cities and towns where the public lands and their resources are more frequently and intensively used for legal and illegal activities.

According to urban interface research and BLM reports (BLM Urban Reports 1997), effects on healthy public lands stem from the current increase in urban areas. The effects on the interface zones include: trash dumping, shooting firearms, wildfires, uncontrolled pets (dogs and cats), air and noise pollution, damage or theft of natural resource and improvements, poaching, violation of archeological sites, unauthorized OHV travel, trespassing, vandalism and a general increase in criminal activities, as well as effects from residential subdivisions, and water quality and depletion of the water tables. Public land management challenges in the future will focus on urbanization impacts. (Steiner, 1997, Werther 1997, Daugherty and Snider, 1997).

Newcomers to the State consider public lands as a very attractive amenity. Smaller communities are also very attractive for relocation. The population influx will continue into the foreseeable future with increasing effects on public lands.

Cultural

The purpose of this section is to describe the present living custom and cultural environment.

Historically, New Mexico has been dominated by three cultures Native American, Hispanic and Anglo-Celtic. New Mexico today is a blending of these cultures. Although each of the cultures has its distinct features, each has roots to rural origins and the raising of livestock on native rangelands. However, the rapid increase population the New Mexico is bringing with it some new citizens that do not have the same attachment to the livestock grazing on rangelands. Therefore, the attitudes and effects could be quite different between rural and urban cultures. The culture sections are divided into the Traditional/Rural and Urban descriptions.

Traditional/Rural

<u>Livestock Based Culture</u>

The manner in which the common or public domain lands of New Mexico were used for raising livestock grew out of a blending of Spanish, Native American and Anglo-Celtic customary uses of the land. As settlements were established, the people used water and forage on the surrounding rangelands for the purpose of raising their livestock. The rangelands were generally suitable for raising livestock, which, under Spanish and Mexican law were held and grazed in common. The provisions of the Treaty of Guadalupe-Hidalgo created an expectancy that land grantees' customary grazing would continue under American law.

At the end of the Mexican-American War, the United States signed a treaty with Mexico called the Treaty of Guadalupe-Hidalgo. The Treaty was signed in 1848 and applied to most of the lands in New Mexico today. Article VIII of the Treaty of Guadalupe-Hidalgo specified that:

> Mexicans now established in territories previously belonging to Mexico, and which remain for the future within the limits of the the United States, as defined by the present treaty, shall be free to continue where they now reside, or to remove at any time to the Mexican republic, retaining the property which they possess in the said territories, or disposing there of, and removing the proceeds wherever

> they please, without their being subjected, on this account, to any contribution, tax, or charge whatever.
>
> Those who shall prefer to remain in the said territories, may either retain the title and rights of Mexican citizens, or acquire those of citizens of the United States. But they shall be under the obligation to make their election within one year from the date of the exchange of ratification of this treaty; and those who shall remain in the said territories after the expiration of that year, without having declared their intention to retain the character of Mexicans, shall be considered to have elected to become citizens of the United States.
>
> In the said territories, property of every kind, now belonging to Mexicans not established there, shall be inviolably respected. The present owners, the heirs of these, and all Mexicans who may hereafter acquire said property by contract, shall enjoy with respect to it guaranties equally ample as if the same belonged to citizens of the United States.

The terms of the Treaty continue intact, however there is controversy with different interpretations of the Treaty. The rural citizens of New Mexico believe the Treaty should be honored and protected by the United States. In response to the controversy, Senators and Representatives from New Mexico continue to seek additional studies to determine the validity of certain land claims arising out of the Treaty of Guadalupe-Hidalgo of 1848.

After the United States began its occupation of New Mexico, the Anglo-Celtic ranchers established cattle operations here. They carry forward a cattle-centered culture thousands of years old. (McWhiney, 1988.) By the time the Taylor Grazing Act was passed all three ranching cultures (Spanish, Native American and Anglo-Celtic) were established.

In 1934, the U.S. Congress enacted the Taylor Grazing Act which provides for grazing leases and permits:

> ... permits to graze livestock ... to such bona fide settlers, residents, and other stock owners ... Preference shall be given in the issuance of grazing permits to those within or near a [grazing] district who are landowners engaged in the livestock business, bona fide occupants or settlers, or owners of water or water rights. The Taylor Grazing Act goes on to state, PROVIDED FURTHER, That nothing in the Act shall be construed or administered in any way to diminish or impair any right to possession and use of water for mining, agriculture, manufacturing, or other purposes which has heretofore vested or accrued under existing law validly affecting the public lands or which way be hereafter initiated or acquired and maintained in accordance with such law. So far as consistent with the purposes and provisions of this Act, grazing privileges recognized and acknowledged shall be adequately safeguarded, but the creation of a grazing district or the issuance of a permit pursuant to the provisions of this Act shall not create any right, title, interest, or estate in or to the lands".

The intent of Congress was to provide stockholders with "...some type of assurance as to where and what kind of range they may have and depend upon in the way of pasturage" (78 Congressional Record). The grazing privileges were subsequently adjudicated to determine who was eligible for a grazing preference. The term "grazing preference" represents a preference for a grazing permit. The grazing preference was attached to the base property of the ranch and was transferred to the party who owned or controlled the base property. The completion of the adjudication process provided predictability and security of tenure to livestock operators. This predictability and certainty in grazing permits provides the security to obtain financing for livestock capital, operations and improvements on the public land.

While the Secretary of the Interior has the authority to regulate the grazing to protect the rangeland. Good range management and proper stewardship of the rangeland is ultimately linked to the security and tenure of the adjudicated preference grazing permit/lease. (Martin, 1981, Kelso, 1983, Archer, and Snider, 1984). When predictability and certainty are removed, not only do the ranch finances and family suffer, but the incentive for good stewardship and investment into healthy rangeland improvements is stifled.

The existence of rural families and communities continues to depend foremost on the availability of land for livestock, mining, timber, and other resources. Land is the life and well-being of the rural culture in

New Mexico. Working the land is the center piece of their livelihood; supported by multiple sources of supplemental income from wages and jobs in town. The land and water based cultures of New Mexico depend on use of natural resources that are derived from land and water. Such uses include ranching, mining, and timber harvesting which leads to sustainability of these communities. These customs include long term use, land ethics and stewardship of the land by individuals and communities.

Customs & Cultures of Counties

For the Resource Management Plan Amendment/ Environmental Impact Statement process, New Mexico counties, Indian tribes and pueblos of New Mexico were asked to define their customs and cultures in their own terms.

The customs and cultures of rural New Mexico are outgrowths of the people's values, beliefs, and ways of life, combined with all other aspects of living, which weave a complex whole. These customs and cultures are practiced within a relationship between people and place. Appendix E contains statements of the customs and cultures by the New Mexico counties, Indian tribes and pueblos in their own words.

Place is the site or sites marking the life of a person the story of their life and that of the lives that came before them. All of these attributes are embodied in the structures they call home, the communities, and the environment.

The customary uses of the lands continue to be for croplands, grazing, timber and mining that support rural communities and are contribute to the overall State's economy. The commitment to the land that they live and work on is so powerful as to evoke words like: "I don't want to be here [alive], if I can't live here [this person's ranch]." It should be clear then that *place* and identity are virtually inseparable. This is especially true of rural New Mexico where people often cannot, will not, separate themselves from the land they call home (Smith, 1994). Such a separation would destroy the very identity of those people. The customs and cultures that rural New Mexicans practice on their landscape is inclusive of their home and family and the community. It is a bond between people and *place* that is no less than the bond between flesh and blood; it is wholly dependent upon the fabric of land, people, and community being intact and stable.

The importance of community stability is expressed in the statements of custom and culture from the counties. An example of a commonly held feeling on community is: “I will pass along many of the beliefs and values that are cherished by our rural society..." It is within *place* that the values of a region are cultivated. For the people of rural New Mexico, values are products of their history and their experiences with the land that are essential to the continuation of their way of life. These values include the “meaning of heroism, the relation of the individual to family and community, the nature of patriotism, the value of freedom, the challenge of making a home" (Cronon, 1992).

Rural and Urban Values

Public land means something different to rural New Mexicans than it does to the weekend visitors from the city. This is due mostly to the way rural and urban people associate with land in general and their relationship toward landscape. Rural people formed their relationship to the land with a "blood and blister intimacy", causing them:

> ... to have different interactions with the rangelands than urban societies, often resulting in different perceptions, values and uses. Many modern conflicts over rangeland or wildlife issues are conflicts of agricultural (utilitarian) and urban (biocentric) values about human relationships with the use of nature (Kennedy, Fox and Osen, 1995).

Rural people see land, public or private, with a keener eye than merely utilitarian. Land is literally and figuratively the ground upon which these people have built their existence--an existence based on the customs and cultures developed by their predecessors over centuries of land use in New Mexico. For a person related to this view of public lands it is helpful to understand the land base cultures and tenure in the discussion below.

Just as threatening to the rural people of New Mexico as public land policies that adversely affect the land based cultures, is the sometimes swift displacement of community and regional values by the influx of people who bring vastly different sets of values and ways of life to the land.

The migration of people into New Mexico has led to sometimes painful clashes of interests and values in rural areas of the state, including the use of public lands. This is putting it lightly when uprooting a family from the only *place* they have ever known is a very real possibility. Rural communities have endured the impacts of rural-life seekers from large population centers, escaping from the more frantic life. The results of this growth is felt by local residents who must pay higher property taxes for services demanded by the newcomers.

Urban

New Mexicans, Public Opinion and Public Lands

The future of public lands in New Mexico will be guided not only by principles and practices of sound resource management but by public opinions and preferences of New Mexicans. While this has been the case in the past, the future will increasingly include the urban dwellers. While the discussion has focused on displacement of land based cultures and in-migration, public opinion seems to provide some optimism and a framework for the future.

University of New Mexico's Public Policy Center conducted public opinion survey May of 1995. Conclusions from the survey included the following two relevant points:

In considering the proper top priority of the different multiple uses on public rangelands, New Mexicans rate the potential uses as follows:

Point 1

49% view environmental preservation as top priority,
23% view commercial uses as top priority,
22% view recreational uses as top priority, and
6 % view all three as having equal priority

Point 2

A substantial majority (over 75%) of New Mexico citizens believe it to be moderately to extremely important to preserve ranching as a way of life in the state (Baca, 1996).

Chapter 4

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

IMPLEMENTATION OF PUBLIC LAND STANDARDS FOR HEALTH AND GUIDELINES FOR LIVESTOCK GRAZING

Public land standards and livestock grazing guidelines, together with other existing decisions in the RMPs will provide a framework for future decisions. Each standard has a corresponding set of indicators that will be collectively evaluated to make an assessment on the achievement of the standard in the mapping unit of the ecological site. Standards apply to all public lands; however, because resources and staffing are limited, it will be necessary to set priorities for the areas where standards will be assessed.

Livestock grazing guidelines will be applied to ranges where assessments indicate that the standards are not being met and livestock grazing is believed to be a contributing factor in not meeting the standard.

ANALYSIS APPROACH

For this analysis, the most basic question appears to be "How many acres does BLM manage where the standards are not being met?" This determination varies by standard and alternative.

The BLM has a variety of resource data, but has not inventoried the public lands to determine if the proposed standards are being met or not. For example, BLM does not maintain any human dimension data. For the Fallback Alternative there were no human dimension factors to consider, while the RAC Alternative had a Sustainable Communities and Human Dimension Standard and the County Alternative requires a balance between human dimension and biological resources.

A second fundamental question is related to thresholds. Some of the rangelands may have passed through a threshold and will not meet the standard through public land use management alone. For example, some acres are now dominated by brush and or trees. These acres may not meet the standard through use management alone. Some form of brush control will be needed for the standard to be met.

A third fundamental question is how many allotments could be affected by the grazing guidelines?

A forth fundamental question is what additional activities may need to be adjusted for the standards to be met? This is important because it will determine what activities may be impacted by establishing a standard or guideline.

The BLM asked each field office to provide information on the four fundamental questions. For example, the FOs estimated 480 allotments for the Fallback Alternative, 428 allotments for the RAC Alternative and 287 for the County Alternative would have grazing guidelines applied to at least a portion of the allotment. Additionally, each field office provided supplemental information to assist in assessing the scope of impact the various activities. The RMPA/EIS team then used the field office estimates as a basis for analysis.

This RMP Amendment/EIS presents a sufficient range of scenarios and assessments to allow the reader to determine what it would take to implement the standards and guidelines and what the potential impacts would be.

In addition to the standards and guidelines assessed, a few existing RMP decisions are proposed to be changed as shown in Appendix B. The RMPA/EIS team reviewed the proposed changes, assessed any potential impacts and included them as part of the analysis, as appropriate. Any potential impacts from changes to RMP decisions are discussed.

Economic Impact Assessment

The potential cumulative economic impacts were determined from implementation of the standards and guidelines for three alternatives: RAC Alternative, County Alternative, and the Fallback Alternative.

The total grazing permits/leases projected by each county to be impacted by each of the three

alternatives was determined by the BLM field offices. This analysis focuses solely on those allotments that did not meet the standards for any number of reasons as estimated by the BLM. There were 480 allotments not meeting the Fallback standards, 428 allotments not meeting the RAC standards and 287 allotments not meeting the County standards. For the purposes of this analysis, the allotments were treated as the number of ranches impacted. The BLM identified the county location of each ranch; based upon the county location, a ranch budget region was identified and the size of the ranch for each region was determined from the BLM actual authorized animal unit months (AUMs) and the percentage of public land identified for that allotment to ascertain the size of the total ranch in order to categorize the ranch into the historic ranch budget sizes. These representative published ranch budgets associated with the number of AUMs, land tenure pattern and production characteristic by size were then used as the baseline from which all impacts or changes were measured. Published ranch budgets were not available for all ranch sizes in each region; to bridge this gap, adjacent region's budgets for the missing size as well the most similar budgets for that region was used to develop an approximation for a representative ranch budgets as the baseline encompassing the four principle ranch budget areas where BLM lands occur within New Mexico.

A single point in time reference suffers from the large volatile fluctuations of market prices over shadowing the effects and ramification of the event being analyzed; an example would be analyzing a high performance year such as 1994 for the range livestock industry would overstate impacts associated with a change in AUMs, the opposite is true of the price trough in 1987 which would understate the impacts. A 12 year cattle price cycle exists; therefore, an average budget was constructed for both prices, costs, and production characteristics associated with drought and prices. The average production and price cycle was built for the 18 representative ranch budgets and became the baseline from which impacts were quantified.

Individual Ranch Analysis

The developed 10 year average ranch budgets function as the baseline; the ranches not meeting the standards for each alternative were identified by region and distributed as a percent by ranch size. The range livestock industry was then directly involved by making recommendations for each representative ranch size for those ranches not meeting the standard. A ranch template was constructed for each ranch and subsequently modified to improve livestock distribution or forage production by means of fence construction, water locations, drinkers and pipelines or by brush control practices. It was assumed that some of the ranches not meeting the standard could not achieve the standard without a reduction in AUMs; therefore, each alternative had an option of either no BLM AUM reductions or a 20% reduction in BLM AUMs. It was also assumed that 20% of the recommended improvements were installed followed by a year of growing season deferment until the full regime was in place on the ranch by the 10th year after initiating the practices. Associated variable costs of operating and maintaining the ranch with the recommended improvements were developed for each ranch size for the 4 major ranching regions of the State.

Range improvements are long-term investments in the basic land resource that require years to yield a positive return to amortize the dollars invested. The initial impacts and ranch progression were diagramed and presented in Figure 4-1. The AUM reductions and/or change in variable costs and additional interest payments were put in place in year one with no further change in costs or AUM numbers until year 7 when the initial reduction was returned to the ranch and one-third of the difference between actual authorized AUMs in 1996 and a specific numeric target for the allotment were restocked. An additional 1/3 increase toward the specific numeric target would be realized in year 14 and completely implemented 21 years after placement of the improvements. These additional AUMs would be partially allocated to livestock as the ecological condition of the allotment improved in terms of productivity, diversity, and residual biomass due to the response from the improvements. Investment costs, variable costs and the value of production were developed for each ranch size and region. The costs and returns were the individual ranch level impacts from implementation of the three alternatives.

Industry Impacts

The number of ranches impacted is the critical link between the individual firm or ranch and the impact to the industry. Aggregating the ranch impact by the

FIGURE 4-1
INITIAL IMPACTS AND RANCH PROGRESSION

Changes in Impacts

Year 1	Year 7	Year 10	Year 14	Year 21
Intitial Impacts 1st year impacts	Increase AUMS Add 20% lost + 1st -1/3 toward pref	Reduced Impacts No longer feeding No longer interest Only misc. & repair	Increase AUM 2nd-1/3 to pref	Increase AUM 3rd-1/3 pref

Years	1,2,3,4,5,6,7	8,9,10	11,12,13,14	15,16,17,18,19,20,21
Calculation of Impacts	7 yr cumulative Initital Impacts *7	yr 10 cumulative Initial Impact +Incr AUM* 3 +7yr cumulative	Year 14 cumulative reduced impacts + Incr AUM *4 + 10 yr cumulative	Year 21 cumulative reduced impacts + 2nd-1/3 to pref * 7 + yr 13 cumulative + 3rd - 1/3 pref

number of ranches determined to be out of compliance and not meeting the standards by either the riparian, upland, or biotic standards was the mechanism to determine the total magnitude of AUMs lost/or gained and additional costs/returns incurred.

Methodology

With the identification of ranches affected by region (see map 4-1), as shown in Figure 4-2 and an average budget for each ranch size within each region, impacts to the ranches needed to be identified. This was done with the help of industry representatives and the BLM. The BLM and ranchers cooperatively identified the improvements that were most probable for an allotment in each region to achieve the standard. With this information the industry representatives estimated, as a percentage, the increased variable costs that would be associated with the improvements recommended. These percentages were then applied to the average budget for that particular region and ranch size. At this point there were two options applied to the analysis for all three alternatives:

1. That all of the allotments not meeting the standard could be improved without a reduction in AUMs. Ranches would attempt to feed their way out of the forage deficiency and that the allotment would improve.

2. That some of the allotments would require the removal of AUMs for that allotment to improve and meet the standard. For this option all allotments, not meeting the standard, were analyzed with the removal of 20% of the authorized AUMs.

It should be recognized that both are unlikely and that the real impact would be some point between the two options. After implementing these two options into the analysis, three additional options for the previous 2 options for each alternative, were analyzed for each region, ranch size, and AUM reduction, they were:

1. That the BLM would provide all of the funding for the establishment of the improvements to bring the allotment to standard.

2. That the BLM would provide the funding for the materials and the ranch would provide the labor of constructing the improvement.

3. That the ranch would provide all of the funding for the establishment of the improvements to bring the allotment to standard.

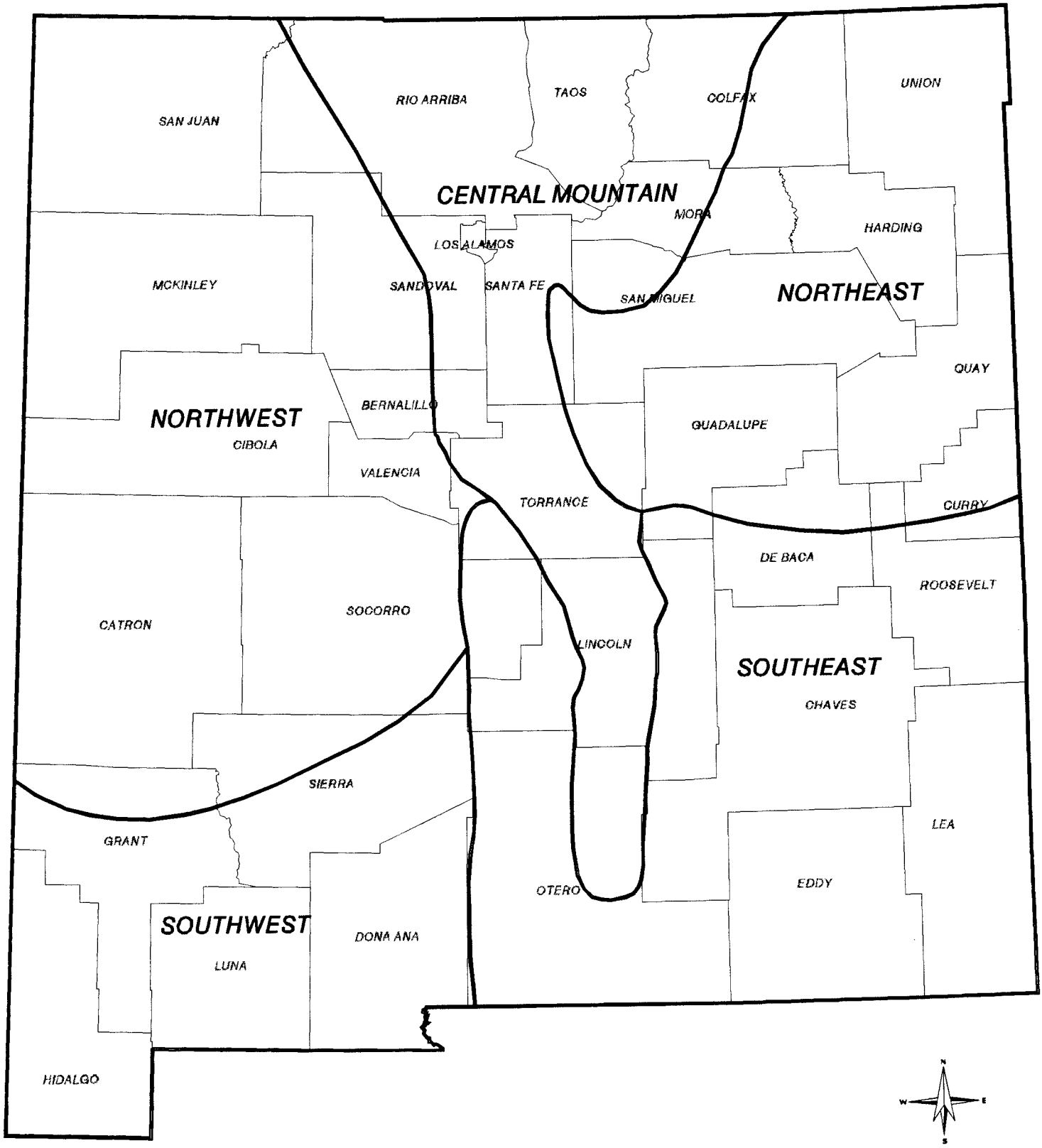
These three options were considered because of the limited funding available to the BLM for range improvements. Neither of the options are likely; but, some combination of all three is most probable to happen.

Another possibility considered in the analysis was that with increased regulation and operating costs to the ranch, some of the ranches would sell the base property for development and no longer use the federal permit. For additional analysis it was assumed that 22%[1] of the ranches not meeting the standard would convert to real estate rather than shoulder the cost of additional improvements and regulation. These ranches, including the permit/lease, were assumed as permanent losses and no longer maintained in production. Although it is possible that the federal permits/leases may be purchased by another ranch, it was not considered in this analysis due to the insecure tenure of federal permits. When 22% of the impacted ranches not meeting the standard were removed, the same assumptions that applied to the scenario that no ranches quit were applied to the remaining 78% of these ranches.

After the baseline budgets and adjusted budgets were created for all assumptions and options, the differences were identified and used as an input into the representative sectors as a change to the sector to identify total economic impacts to the New Mexico economy (in the I-O model). These changes in management were calculated to quantify the total economic impacts of the initial or first year impacts

[1]Percent of ranches identified in "Economic Characteristics of the Western Livestock Industry" as ranches in New Mexico that would convert to real estate with the loss of federal AUMs.

Map 4-1. Cow / Calf Ranching Areas in New Mexico

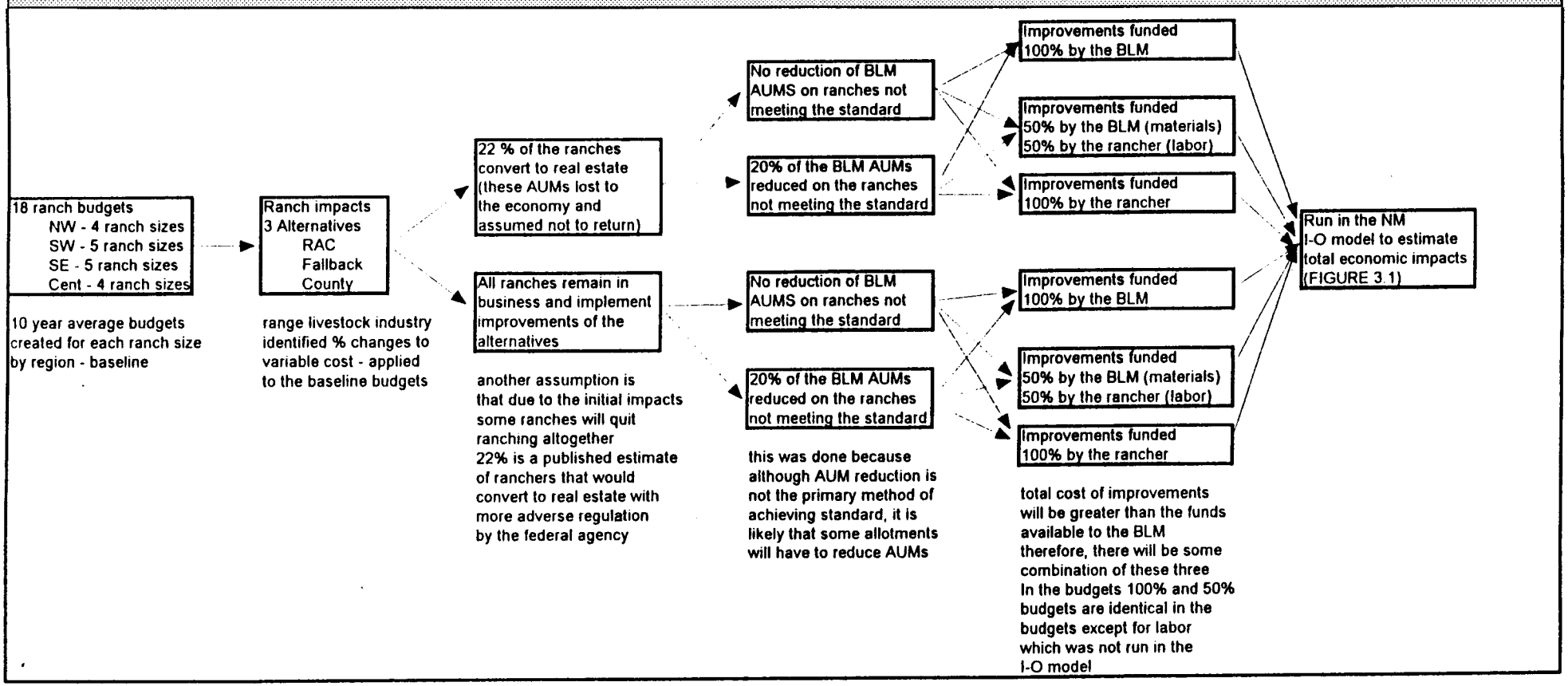


Produced by the New Mexico State Office Geographic Sciences Team, Bureau of Land Management, August 06, 1998

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

Source : New Mexico State University
Agricultural Experiment Station
College of Agriculture and Home Economics
Research Report 724:
"Range Livestock Cost and Return Estimate for New Mexico 1994"

FIGURE 4-2
OUTLINE OF METHODOLOGY



to the State of New Mexico. The initial impacts were then aggregated over a seven year period to determine the cumulative impacts of implementation of the guidelines for the first seven years. In year seven it was assumed that the allotment had improved to the point that 1/3 of the difference between authorized AUMs and a specific numeric target of AUMs would be allowed on the allotment, plus the reauthorization of any AUMs removed. The initial impacts continued to year 10, because it was assumed that full implementation of the improvement would be completed at that point. At this time the economic impacts to the State would be less severe, because the only permanent change in the spending pattern of the range cattle industry would be the maintenance and repairs of the additional improvements. In the 14th year an additional 1/3 of the AUMs toward the specific numeric target would be authorized for the allotments that previously did not meet the standards. And the final 1/3 of the specific numeric target of AUMs would be authorized in the year 21 after the initial identification of the allotment not meeting the standard.

After the initial analysis of economic impacts of allotments not meeting the standard, it was determined that the analysis was incomplete. The allotments that currently met the standard were held constant in the analysis, instead of increasing in grazing capacity. This provided an incomplete picture of the cumulative economic impacts to the State of New Mexico. Those allotments, because they met the standard should not be penalized, but should also move towards historic numeric target levels. Therefore, the analysis was completed by moving all allotments in the State, after 7 years of monitoring, to historic numeric target levels. The same stair step methodology was used, with 1/3 of the AUMs being authorized every 7 years.

Also, after the initial analysis an error in the initial methodology was also discovered. When a ranch had a 20% reduction in AUMs, those animal units created a negative economic impact to the economy and in year 10 those AUMs were re-authorized for the ranch. This was initially calculated as a negative impact for 10 years and then to year 21 it was a positive impact. However, this is an incorrect interpretation, because the re-authorization of those AUMs was only bringing the ranching unit back to the baseline animal units, equal to those in the scenario when no AUMs were reduced.

Human Dimension

Background

The Cooperating Agency Counties in this BLM/State NEPA EIS process have enacted ordinances that require the Counties to develop coordinated environmental assessments with Federal agencies. The County assessment would be developed with a special emphasis on analyzing social, cultural and economic impacts from government proposed actions (See Appendix F: The National Environmental Policy Act of 1969, as amended NEPA). The County ordinances require coordinated assessments that are consistent with the concepts of the mini-NEPAs provided for under Council on Environmental Quality Regulations (CEQ 40 CFR §1506.2 b). The County mini-NEPAs are designed to reduce duplication of effort in the environmental analysis processes (NEPA 40 CFR §1506.2).

Focus

This Human Dimension analysis examines regions, communities and groups in New Mexico that may potentially be impacted by the alternatives. The Human Dimension analysis is composed of the following three sections:

financial
social
cultural

The foundation for looking at the Human Dimension impacts is resource use. Where there will be a change in resource use by an existing resource user(s) there may be Human Dimension impacts. Potential changes in resource use are primarily identified in the livestock grazing sector because guidelines are proposed for livestock grazing but not for other activities.

Potential impacts on ranch operations would result from livestock operation changes, increased costs of range improvements, and/or herd reductions. Because specific ranches affected could not be identified nor

the degree of impact quantified, scenarios were developed to look at possible livestock grazing practice adjustments from implementation of the guidelines for livestock grazing. As resource use would change, employment, economic activity, personal income and finance are impacted.

The social and cultural analysis presented for each of the alternatives in this chapter focuses on possible impacts on ranching communities that utilize the public land.

ASSUMPTIONS FOR ANALYSIS

1. Disturbance from authorized uses would not necessarily prevent or preclude a site from meeting the standard. However, where proposed disturbance might result in the site not meeting the standard, any and every opportunity to improve the condition would be taken through stipulations on permitted uses and other means so that the overall trend is upward and the activity can be approved.

2. The demand for public lands for a variety of uses will continue to increase.

3. Existing laws will continue in effect, and use authorizations will continue to be issued by BLM.

4. BLM staffing will remain the same.

5. Monitoring levels of authorized activities will remain the same.

6. The short-term is considered to be 5 years and the long-term is 20 years.

7. The NMDGF will control the increase in elk populations.

8. In 20 years a specific numeric target would be reached.

9. No debt load for the ranchers.

NO ACTION (PRESENT MANAGEMENT) ALTERNATIVE

VEGETATION

Upland Vegetation

Under the No Action Alternative, management of vegetation on public lands within New Mexico would continue, consistent with existing RMP decisions and guidance. The rate of change due to management would continue as in the recent past. Vegetation in early seral stages would continue to be enhanced through the implementation of allotment activity plans and other activity-level plans (such as Habitat Management Plans or Coordinated Resource Management Plans). These plans would continue to be developed, and would continue to implement grazing systems, construction of range improvements to redistribute grazing pressure, and vegetation treatments to improve the ecological status of a particular allotment or pasture of a grazing allotment. In the short-term, brush control would improve the ecological status on approximately 103,000 acres. In the long-term, brush control would improve the ecological status on approximately 410,000 acres. Most of this effort would likely be aimed at the roughly 5 to 6 million acres in the mid- and late upper- early seral stages. In terms of vegetation types affected, most of the areas needing management are those that were formerly grasslands and are now dominated by desert scrub and juniper savannah types. Additionally, some shinnery oak control may be necessary to restore Great Plains tall- and mid- grass types, especially where needed for wildlife concerns such as the lesser prairie chicken. These areas are located in MLRAs 36, 42, and 70.

Riparian Vegetation

BLM would continue its management of riparian vegetation. Heightened public interest regarding riparian areas and endangered species issues would likely continue to push riparian area management into the forefront of BLM management activities. The result of this management priority would likely be renewed effort to restore, as much as possible, the 154 BLM riparian segments not in proper functioning condition. This would happen regardless of whether BLM enacts new rangeland health standards and grazing program guidelines, or which standards and guidelines BLM enacts. In the short-term, improvement in functional condition is expected on approximately 20 riparian segments. In the long- term, improvement in functional condition is expected on approximately 58 segments.

SOILS

Under current direction, with intense management, there would be a continued slow improvement over the long-term in upland soil conditions where soils are more productive, such as Mollisols, Alfisols, and moderately fine textured Entisols. On poorer sites, and with less intensive management, there would be little or no change over the long-term in the health of the upland soils except in response to drought or additional moisture conditions. No changes are expected for either case over the short-term.

WATER

In the long-term, continued implementation of BMPs to reduce NPS pollution and riparian area management would promote reductions in erosion and sediment production from public lands and slowly improve water quality. There would be less sediment, nutrients, salts, and biological contaminants in the water. The cycle of apparent arroyo filling is expected to continue, which would support riparian restoration, in turn improving water quality by acting as a filter for many pollutants.

While water quality affected by public land uses might improve, it is not expected that any of the water quality-limited stream reaches identified by the state would improve enough to meet state standards solely from this action. The impacts on those water quality-limited stream reaches from non-public land uses and sources of pollutants would also have to be reduced to help meet state standards.

GRAZING ADMINISTRATION

Each field office has an approved RMP which provides a framework for managing and allocating public land and resources over a 20-year period. The decisions of the RMP to improve rangelands and manage grazing use on public lands were based on the principles of multiple use and sustained yield. Decisions include actions such as developing LAPs, constructing range improvements, manipulating vegetation, and developing grazing systems and other actions. Staff

levels vary, as do priorities, funding, policy, and level of interest and involvement from government agencies and interest groups.

Under the No Action Alternative, RMP decisions would continue. Priorities have been established based on the selective management approach, using the "M", "I", and "C" classification categories. At this time 6.7 million acres falls into the "I" category. BLM has been successful in resolving issues and meeting goals under existing RMP decisions and guidance. Much can be attributed to the cooperation and stewardship of many grazing permittees. An average of two allotments-or 80,000 acres per year-have improved from category "I" to category "M" because of meeting allotment objectives. In the long-term (over 20 years) 40 allotments are expected to improve from the "I" to "M" category. This would reduce the acreage in the "I" category from 6.7 million acres to 5.1 million acres.

LAPs are expected to be developed on 60 to 100 allotments affecting 1.6 million acres over the next 20 years on "I" allotments. Three to five plans per year may be developed in the short-term and approximately 60 to 100 plans over the long-term (20 years). In developing AMPs through consultation, coordination, and cooperation with permittees, management actions regarding rest and deferment adjustment in livestock numbers, seasons of use, and range improvements are considered that best meet resource needs with a minimum of impact on the permittees. Monitoring efforts on these allotments are intensified.

Under the No Action Alternative, livestock use levels are expected to remain approximately at the 7-year average. However, fluctuation in use levels can be expected due to a variety of factors such as weather conditions and the price of livestock. Future use levels have been projected based on seven years of data (1990 to 1996) from the Grazing Authorization and Billing System. During the 1996 grazing year, 1,502,516 AUMs were authorized in New Mexico. The long-term projection, however, is expected to be around 1,696,981 AUMs-the average of the seven years. This is 166,222 AUMs more than were authorized in 1996.

An improvement in ecological condition can be expected in the long-term. Vegetation treatments would improve the ecological status on 103,000 acres in the short-term and on approximately 410,000 acres in the long-term.

It is anticipated that the ecological condition of the rangelands would continue to improve, because of the improving soil and vegetation resource. This would also contribute to the improvement of the riparian areas by decreasing the speed of runoff and sediment.

Riparian and wetland habitat areas are given high priority for protection and improvement. Grazing management practices such as fencing and grazing systems are designed to meet or restore riparian and water quality needs in 154 riparian segments that are not in proper functioning condition. There would be segments of riparian habitat where current grazing practices would be adjusted to achieve riparian standards. In the short-term, functional condition on 20 riparian segments would be expected to improve. In the long-term, improvement in functional condition would be expected on 58 segments. Vegetation and litter in the riparian zone should respond and increase. The increase in canopy cover and litter should decrease the runoff and sediment, and improve the water quality.

WILD HORSES

Under the No Action Alternative, the wild horse herd will be managed as stated in the Socorro RMP. The 1985 Herd Management Area Plan amendment reflects the new appropriate management level of 50 wild horses. Monitoring studies will be conducted annually to assess the forage condition and population. Based on the monitoring data, wild horses will be water trapped and removed from the area when necessary. The removed wild horses would be shipped to an adoption site or facility to await adoption.

The grazing system and water facilities developed through the AMP of 1968 have benefitted the wild horses. Pastures are grazed by cattle for 2 to 5 months and then rested from 7 to 10 months. Monitoring data show the allotment to be in fair to good condition with a static trend. Improvement in upland vegetation composition and cover should continue.

Approximately 10-20 wild horses are located in each pasture grazed year-round. Horses are not rotated or

moved from pasture to pasture as are cattle and therefore do not provide vegetation with complete rest.

Studies show a moderate to high use when wild horse numbers reach 50 and above. In the long-term, the fair to good range condition should remain static or improve as long as the appropriate management level of 50 is maintained and balanced with grazing and other uses.

Under the No Action Alternative, the wild horses in the Farmington field office would be managed at the optimum level of 60 head. The Forest Service would determine the time and number of wild horses to remove if such action becomes necessary. Maintaining the herd level at its optimum numbers would help maintain the range in proper condition and balanced with other uses.

WILDLIFE

For all MLRAs, full implementation of existing RMPs under this alternative would have a slow, long-term benefit on most wildlife species.

36 - New Mexico and Arizona Plateaus and Mesas

Big Game

The development and implementation of LAPs identifying goals and objectives for vegetative land treatments and water developments would maintain or slightly improve wildlife habitat for big game species over the long-term. Natural events (fire, flooding, etc.) That create a mosaic within the landscape and diversify the plant community would also benefit wildlife. Mule deer and elk are the primary big game species benefitting from these actions. A slight increase in the deer population would be expected through improving the quality and quantity of browse on upland sites, and creating new fawning areas. Elk are currently increasing in numbers; however, any increase would be controlled by the NMDGF. The quality of habitat would maintain or slightly improve over the long-term for riparian-dependent big game species (turkey, deer, and furbearers) due to the current emphasis on riparian management. However, due to the small percentage of riparian habitat located on public land and other limiting factors that affect big game populations, no measurable increase in populations is expected.

Off-highway vehicle use can potentially increase the number of roads on public land, resulting in degradation of big game habitat and increasing wildlife harassment and displacement. Under current management, road closures are slowly being implemented, but not to the degree necessary to reduce off-highway vehicle impacts.

Upland Game and Nongame

Upland sites would gradually improve over the long-term, through land treatments and proper grazing practices, resulting in a benefit for some upland wildlife species. The continued construction of water developments would favor upland game bird species.

Again, current management would slightly improve upland and nongame habitat conditions in the long-term, particularly in areas where vegetative treatments are proposed and for those species dependent upon riparian areas that are in an upward trend in condition.

Waterfowl

Current waterfowl management is closely associated with riparian management, and would improve over the long-term, with current BLM's emphasis on riparian management.

Fisheries

Habitat quality for resident fisheries would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat would be improved over the long-term.

37 - San Juan River Valley Mesas and Plateaus

Under current management, vegetative treatments (chemical and fire) would change the overall plant composition within the sagebrush and desert shrub community, benefitting local big game populations. Implementation of range improvements defined in the RMPs and LAPs would slowly improve antelope and mule deer habitat through increasing water distribution and improving forage availability and quality.

The quality of habitat would maintain or slightly improve over the long-term for riparian-dependent big game species (deer, furbearers, etc.) due to the current emphasis on riparian management. However, because

of the small percentage of riparian habitat located on public land and other limiting factors that affect big game populations, little increase in populations is expected.

Allowing public access, while controlling OHV use and protecting wildlife habitat, is a major concern for most field offices. Off-highway vehicle use can potentially increase the number of roads on public land, resulting in degradation of big game habitat and increasing wildlife harassment and displacement. Under current management, road closures are slowly being implemented, but not to the degree necessary to reduce off-highway vehicle impacts.

Upland Game and Nongame

Upland sites would gradually improve over the long-term, through land treatments and proper grazing practices, resulting in a benefit for some upland wildlife species. The continued construction of water developments would favor upland game bird species.

Again, current management would slightly improve upland and nongame habitat conditions in the long-term, particularly in areas where vegetative treatments are proposed, and for those species dependent upon riparian areas that are in an upward trend in condition.

Special management for raptor nesting areas would continue. Small changes in the overall landscape, while still protecting nest sites, would increase the prey base for raptors.

Waterfowl

Current waterfowl management is closely associated with riparian management, and would slightly improve over the long-term with BLM's current emphasis on riparian management.

Limiting factors associated with waterfowl management are the lack of functioning riparian areas on private lands. Waterfowl primarily migrate into the state during the winter months through the central flyway.

Fisheries

Habitat quality for resident fisheries would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat would be improved over the long-term.

39 - Arizona and New Mexico Mountains

Big Game

The BLM manages very little public land of this type. However, there are several areas having LAPs identifying wildlife goals and objectives and allowing vegetative land treatments and water developments. These projects, along with controlled grazing, would maintain slightly improve wildlife habitat for big game species over the long-term. The southwestern part of the state has a very active fire season. These natural events can be beneficial to resident elk herds by creating open meadow areas and increasing the amount of forage.

Upland Game and Nongame

Upland sites would gradually improve over the long-term, from land treatments and proper grazing practices; resulting in a benefit for most upland and nongame wildlife species.

Waterfowl

Waterfowl habitat would improve with respect to riparian improvements. Waterfowl and riparian habitat improvements would gradually be enhanced over the long-term. However, since the majority of waterfowl are migratory, no measurable change in populations are anticipated.

Fisheries

Habitat quality for resident fisheries would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

41 - Southeastern Arizona Basin and Range

A small percentage of this MLRA exists on BLM lands and the Coues' whitetail deer occupies this corner of southwestern New Mexico. Over time, current management would continue to maintain or improve wildlife habitat.

42 - Southern Desertic Basins, Plains, and Mountains

Maintenance of desert ecosystems is very critical, yet difficult to manage, due to climatic conditions and the recent expansion of human activities that can potentially alter habitat components critical to some desert species.

Big Game

The development and implementation of LAPs that identify management objectives and provide forage plant needs, vegetative land treatments, water development, and cooperative management efforts would continue to slowly improve big game habitat over the long-term. Natural events (fire, flooding etc.) that created a mosaic within the landscape and diversify the plant community would also benefit wildlife. A slight increase in the deer population would be expected because of improving the quality and quantity of browse on upland sites, and creating new fawning areas. Pronghorn antelope populations are expected to increase over the long-term due to improved habitat conditions and transplants. Habitat conditions would improve over the long-term due to improved ecological conditions and movement patterns. Antelope transplants would be expected to continue in cooperation with the NMDGF and other land owners.

Competition for food and space between mule deer and the Iranian ibex would continue under current management practices. Oryx would continue to move off the White Sands Missile Range and may potentially displace mule deer and antelope because of their size and aggressive behavioral patterns.

The quality of habitat would maintain or slightly improve over a long period for riparian-dependent big game species (turkey, deer, and furbearers) due to the current emphasis on riparian management. However, due to the small percentage of riparian habitat located on public land and other limiting factors that affect big game populations, no measurable increase in populations is expected.

Upland Game and Nongame Species

Upland sites would gradually improve over the long-term through land treatments and proper grazing practices, resulting in a benefit for scaled quail, Gambel's quail and dove populations. The continued construction of water developments would favor upland game bird species.

Waterfowl

Limiting factors associated with waterfowl management are the lack of functioning riparian areas, agricultural fields, and the conversion of grain crops to cotton and chile located on private lands within the Rio Grande and Pecos Valley areas. Waterfowl primarily migrate into the state during the winter months through the central flyway. Current waterfowl management is closely associated with riparian management, and would slightly improve over the long-term with current BLM's emphasis on riparian management.

Fisheries

Habitat quality for resident fisheries would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat would be improved over the long-term.

48 - Southern Rocky Mountains

The BLM manages very little public land within this MLRA. However, there are several areas that have management plans identifying wildlife goals and objectives and allowing vegetative land treatments and water developments. These projects, along with controlled grazing, would maintain or slightly improve wildlife habitat for big game species over the long-term.

51 - High Intermountain Valleys

Big Game

Rocky Mountain elk would continue to be a key wildlife species within the Taos field office. Critical winter range would be improved through prescribed fires in the San Antonio, Pot, and Montoso mountains and Habitat Management Plans that outline goals and objectives for big game species. Pronghorn antelope exist throughout these Special Management Areas and would benefit along with the elk from these goals and objectives.

Upland Game and Nongame

Upland sites would gradually improve over the long-term, through land treatments and proper grazing practices, resulting in a benefit for scaled quail, mourning dove, Merriam's turkey, numerous raptors and migratory bird populations. The continued construction of water developments would favor upland game bird species.

Waterfowl

The limiting factors associated with waterfowl management are the lack of functioning riparian areas. Waterfowl primarily migrate into the state during the winter months through the central flyway. Current waterfowl management is closely associated with riparian management and would slightly improve over the long-term with BLM's current emphasis on riparian management.

Fisheries

Habitat quality for resident fisheries would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat would be improved.

70 - Pecos/Canadian Plains and Valleys

Big Game

Vegetative land treatments, increased water developments, and cooperative management efforts would continue to improve big game habitat. Mule deer are continuing to spread throughout the MLRA, but overall populations are declining in this MLRA and statewide. The development and implementation of LAPs that identify management objectives and provide forage plant needs, vegetative land treatments, and water developments would maintain or slightly improve wildlife habitat for big game species over the long-term. Natural events (fire, flooding, etc.) That created a mosaic within the landscape and diversify the plant community would

also benefit wildlife. A slight increase in the deer population would be expected. Due to improving the quality and quantity of browse on upland sites, and creating new fawning areas. Pronghorn antelope populations are expected to increase over the long-term due to improved habitat conditions and transplants. Habitat conditions would improve over the long-term due to improved ecological conditions and movement patterns. Antelope transplants would be expected to continue in cooperation with the NMDGF and landowners.

Upland Game and Nongame

Upland sites would gradually improve over the long-term through land treatments and proper grazing practices outlined in Habitat Management Plans and LAPs, resulting in a benefit for scaled quail and dove populations. The continued construction of water developments would favor upland game bird species. With the current regional emphasis on the decline of prairie chicken populations, current grazing management practices would need to be amended to address special habitat requirements needed for sustainable populations.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat would be improved over the long-term.

77 - Southern High Plains

Big Game

The BLM manages very little public land within this MLRA. However, current RMP decisions would improve wildlife habitat by identifying wildlife goals and objectives and allowing vegetative land treatments and water developments.

Upland Game and Nongame

Upland sites would gradually improve over the long-term, through land treatments and proper grazing practices, resulting in a benefit for most upland and nongame wildlife species.

Waterfowl

Waterfowl habitat would improve with respect to riparian improvements. Waterfowl and riparian habitat improvements would gradually be enhanced over the long-term. However, since the majority of waterfowl are migratory, no change in populations is anticipated.

SPECIAL STATUS SPECIES

Under the No Action Alternative, management of special status species on public lands within New Mexico would continue consistent with existing RMP decisions and guidance (including the results of the statewide Section 7 consultations for each RMP). The rate of change due to management would continue as in the recent past. Special status species management would continue through the implementation of LAPs and other activity level plans (such as Herd Management Area Plans and Coordinated Resource Management Plans). These plans would continue to implement grazing systems, construction of range improvements to redistribute grazing pressure, and vegetation treatments to improve the ecological status of a particular allotment or pasture of a grazing allotment.

In the short-term, brush control would improve the ecological status on approximately 103,000 acres. In the long-term, brush control would improve the ecological status on approximately 410,000 acres. Most of this effort would likely be aimed at improving the roughly 5 to 6 million acres in midseral and upper early-seral areas. In terms of vegetation types affected, most of the areas needing management are those areas that were formerly grasslands and are now dominated by desert scrub and juniper savannah types of the woodland biome in MLRAs 36, 42, and 70. Some shinnery oak control may be necessary to restore Great Plains tall- and mid-grass types where needed for wildlife concerns such as the lesser prairie chicken. These activities would benefit many of the 55 species that occur within the woodland and desert biomes. Of concern when implementing livestock grazing practices is that the approximately 4,285,000 acres in areas of late seral and PNC ecological status not decline due to redistribution of grazing patterns. These areas, in many cases, provide suitable habitat to support special status species with late seral habitat requirements. Conversely, brush control activities may have only partial benefit to special status species, where the species require late-seral to PNC habitat conditions, and the improvement capability is only to mid-seral due to past erosion and soil loss.

The BLM's priority in the near future would likely be continued restoration of riparian habitats. In the short-term, improvement in functional condition is expected on approximately 20 riparian segments. In the long-term, improvement in functional condition is expected on approximately 58 segments. This will benefit many of the 76 species associated with these habitats, including the southwestern willow flycatcher. Improvement of many areas would be limited by the fragmented distribution of BLM riparian areas and the lack of coordinated watershed management efforts.

RECREATION

Recreational visitor use would continue to increase, particularly in areas where urban visitors recreate. Developed recreation sites would be especially have increased use. The recreational use levels are not expected to be impacted by rangeland management practices.

It is expected that the present conflicts between livestock use and the developed recreational area at the Wild Rivers Recreation Area would be resolved over the next five years. As additional recreational sites are developed, livestock are expected to be excluded.

The BLM is expected to resolve livestock grazing conflicts on riparian areas. In the long-term, an additional 58 riparian segments are expected to improve in condition. This would improve the quality of visits for recreationalists on the public lands.

The 1,600,000 acres within Category "I" allotments would improve to the "M" category, improving the quality of the visit for recreational visitors.

WILDERNESS

Under the No Action Alternative the existing situation would continue in wilderness areas and wilderness study areas. Livestock grazing practices would be constrained by existing wilderness study area management guidelines. Range improvements to facilitate livestock grazing management would be authorized only where they are consistent with the wilderness area and wilderness study area management guidelines. Existing resource conditions and trends would be expected to remain the same.

CULTURAL RESOURCES

Under existing management, cultural resources are protected by law from the effects of new development of livestock facilities; however, loss of, and damage to, cultural resources continues to occur due to increased public access, erosion, and cattle trampling resulting from livestock grazing and development of associated facilities. Efforts by the BLM continue in cooperation with permittees and lessees to improve cattle distribution, thereby reducing the intensity of impacts in localized areas.

PALEONTOLOGY

Under present management, paleontological resources are protected by law from the effects of new development; however, loss of, and damage to, paleontological resources continues to occur due to increased public access, erosion, and cattle trampling. Efforts by the BLM continue in cooperation with permittees and lessees to improve cattle distribution, thereby reducing the intensity of impacts in localized areas.

REALTY/LAND USE

Applications for all land and realty actions are considered by BLM on a case-by-case basis. The majority of realty actions require short-term use of the lands with long-term productivity being restored upon rehabilitation of disturbed areas (USDI, BLM, Roswell RMP, 1994). However, there are permitted actions such as access roads, which result in disturbances over the long-term, decreasing the productivity of that area for the life of that project. Each project proposal contains mitigation measures to minimize or avoid impacts. The requirements for reclamation and rehabilitation are covered in project components along with stipulations required by BLM. This process mitigates or avoids impacts while allowing for a variety of uses on public lands.

Local areas are impacted by land and realty activities creating both short- and long-term surface disturbance by reducing vegetative cover and forage, increasing erosion or sediment load, degrading wildlife habitat, and increasing the potential for the introduction or spread of noxious weeds. Stipulations, if complied with and successful, would mitigate impacts on a local basis by reducing soil erosion and sediment load, restoring ground cover, restoring diversity of plant species, protecting threatened and endangered or special status species and their habitats, minimizing the introduction or spread of noxious weeds, and protecting important cultural or historic resources. The impacts associated with land and realty surface disturbing activities would continue under the No Action Alternative.

MINERAL RESOURCES

The primary objective of the BLM minerals program is to provide consumptive use of the resource as needed by a productive society. The development and sale of the various mineral resources also provides a source of income for the mineral owner and the developer. Any impact that may affect availability of mineral resources, impede their development, or make development less profitable, would be a concern to anyone who uses mineral products or derives their income from the development or sale of mineral production.

Under the No Action Alternative, public lands currently open to mineral entry or mineral leasing would remain open. Minerals resources would be managed consistent with existing laws and regulations governing their development. Statutory rights of current mineral lessees, claimants, and permit holders would not be affected. Developers of public minerals would continue to be subject to standards that reduce soil erosion, protect fresh water supplies, reduce vegetative disturbance offsite, and safeguard wildlife populations. As provided for in existing mineral development laws and regulations, variations in management style, environmental situations, and public preferences would continue to affect the cost and timing of development. Specific development operations may even be denied under these current conditions.

Saleable Minerals

If no public land health standards are implemented, no additional impacts on the development, sale, and use of public mineral materials would be created. The development scenarios described in current RMPs would continue unchanged. Under the existing mineral material regulations found in 43 CFR Part 3600.0-4, the BLM has discretion to deny the digging and development of new sites. Under the No Action Alternative, the discretion to deny use of mineral materials would remain available; however, no mineral operation would be denied due to the application of a

land health standard. By not issuing land health standards, there would be no additional criteria on which a BLM Authorized Officer might deny mineral material use permits. The use of federal mineral material pits and quarries would continue to be subject to existing standards that protect the environment.

Locatable Minerals

The management of mining claims is subject to the Mining Law of 1872. Under this statute, the non-mechanized casual use of a claim, and mining operations disturbing less than five acres per year, are not subject to a BLM authorization. Most of the claims on public land in New Mexico are mined by this type of operation; therefore, no restrictive conditions and impacts would result from any of the alternatives. Under the No Action Alternative, reclamation standards and requirements for the larger mine plans would not be changed. The mines permitted by BLM would continue to be subject to current environmental degradation standards. There would be no additional restrictive conditions applied to future mine plan permits. In addition to these federal requirements, operations on mining claims are subject to the New Mexico Mining Act of 1993, which sets similar or stricter standards for environmental protection and the reclamation of mined lands. There would be no need to alter the meaning or the determination of unnecessary and undue degradation in the management of locatable and salable mineral resources.

Leasable Minerals

The leasing of mineral resources on public land would not change under any of the alternatives. Under the No Action Alternative, the environmental standards imposed on the development of leasable minerals would not be reduced or made more restrictive. Leasable minerals are currently held to a high environmental protection standard. These standards are applied at the permitting stage to minimize environmental damage and preserve natural conditions during development operations. They can be found in such documents as *Oil and Gas Surface Operating Standards* (the Gold Book), right-of-way handbooks, and RMPs. Strict environmental standards for location and mining of coal leases are found in the Federal Coal Leasing Amendments Act of 1976 and Surface Mining Control and Reclamation Act of 1977. The No Action Alternative would result in no change to the reasonable foreseeable development scenarios for oil and gas leases that are forecast in the current RMPs. No delay or relocation of oil and gas permits would occur due to the potential application of standards.

NATIVE AMERICAN CULTURAL ISSUES

Native American concerns would continue to be protected under the law as stated in Chapter 3.

ECONOMIC CONDITIONS

Current conditions, as described in Chapter 3, are expected to continue.

HUMAN DIMENSION

Financial Impacts

Currently, public land ranch operations for all size classes are meeting their financial thresholds for production. All but two ranches that do not meet the financial threshold for risk could do so if resources were available to increase production (see page 3-60).

Local governments and schools are supported by the tax base created from the private land portions of the ranch, livestock taxes, fees and expenses, maintenance and capital improvements.

Social and Cultural Impacts

Selection of this alternative would result in continued positive improvements in the social and cultural environment.

RAC ALTERNATIVE (PROPOSED ACTION)

Additional analysis due to a change in the RAC Alternative between the draft and final

Following the release of the draft RMPA/EIS and comments received from the public, the RAC made changes to the RAC Alternative. Most changes were of a clarification nature not affecting the impact analysis that was in the draft, however the change dealing with facilities located in riparian areas was more than a clarification and resulted in a change in the meaning of that guideline. As a result of the change in the RAC Alternative guideline on riparian facilities, each Field Office looked at how the existing facilities and the riparian areas would be impacted.

The following analysis of impacts is based on the guideline modification made. It was determined that seven facilities (drinking tubs) located near riparian areas would need to be modified by having float valves added. There would be no effect to the water available in the tubs for livestock use. There would be a cost of approximately $30.00 per tub for materials, plus the time of the Field Office staff to install each float valve. There would also be a small increase in maintenance costs for those permittees to ensure that each valve is functioning properly. The benefit to the riparian area is more water would remain on-site to maintain its values .

VEGETATION

Upland Vegetation

Under the RAC Alternative hereafter the Proposed Action, the focus of management and the application of grazing guidelines would occur on public lands not meeting the standard due to grazing. Management changes would include more water, fencing, land treatments, and possible deferment on areas not meeting the standard. In the short-term, little improvement would be expected. However, in the long-term, measurable improvement in vegetative cover and composition would be expected due to grazing management practices. Additionally, vegetation would be enhanced through the use of mechanical and chemical manipulations in both the short- and long-term. These improvements would occur mostly within the desert and woodland biomes in MLRAs 36, 42, and 70.

Riparian Vegetation

Under the Proposed Action, riparian communities and vegetation on 112 riparian segments classified as nonfunctional and functional at risk with a downward trend or where the trend is not apparent (stable), would not meet the standards. These areas are affected, at least in part, by grazing activities. Management efforts in the short-term would improve 16 segments. Seven of the segments are projected to improve to proper functioning condition. In the long-term, 52 segments are projected to improve. Of this total, 25 areas would improve to proper functioning condition. Improvement of many areas is limited by the fragmented distribution of BLM riparian areas and the lack of coordinated watershed management efforts.

SOILS

With intense management under the Proposed Action, there would be a continued slow improvement over the long-term in upland soil conditions where soils are more productive, such as Mollisols, Alfisols, and moderately fine textured Entisols. On poorer sites and with less intensive management there would be little or no change over the long-term in the health of the upland soils except in response to drought or additional moisture conditions. No changes are expected for either case over the short-term. There would be more overall improvement than either the No Action or County Alternatives due to implementation of grazing management guidelines on more acres, than for those alternatives. Over half of the uplands not meeting the standard for this alternative are in MLRA 42; however, the soil response to management in this MLRA would be slow. More profound response would come from the better sites such as those in MLRA 36 (norther part), 39, 41, 48A, 70 (northern part), and the gently sloping uplands of MLRA 77.

WATER

In the long-term, continued implementation of BMPs to reduce NPS pollution and riparian area management would promote reductions in erosion and sediment production from public lands and slowly improve water quality. There would be less sediment, nutrients, salts,

and biological contaminants in the water. The cycle of apparent arroyo filling is expected to continue which would support riparian restoration, in turn improving water quality by acting as a filter for many pollutants.

While water quality affected by public land uses might improve, it is not expected that any of the water quality-limited stream reaches identified by the state would improve enough to meet state standards solely from this alternative. The impacts on those water quality-limited stream reaches from non-public land uses and sources of pollutants would also have to be reduced to help meet state standards.

GRAZING ADMINISTRATION

Under the Proposed Action, livestock use levels are expected to remain approximately at the seven-year average over the short-term, similar to the No Action Alternative. Adjustments in livestock numbers are expected to be upward on some allotments and downward on others. Adjustments are not expected to be large, either upward or downward because in general, current permits and leases are consistent with grazing capacities established through BLMs rangeland monitoring program. However, fluctuation in use levels can be expected due to a variety of factors such as weather conditions and the price of livestock. As forage conditions and lands improve in health and begin to properly function, increases in livestock use can be expected. The long-term AUM projection statewide is expected to be around 1,968,341 AUMs.

Implementing the guidelines would be similar to BLM's the No Action Alternative. The livestock management practices may include deferment, adjusting livestock numbers, changing season of use, modifying or developing range improvements, and conducting vegetative land treatments. There would be segments of riparian habitat where current grazing practices would be adjusted to achieve the riparian standard.

Under this alternative, 428 permittees could be affected. Smaller ranching operations that have to make modifications in use or management would be affected more than larger ranching operations because smaller ranchers have fewer resources and flexibility. Permittees most affected by the guidelines would be those with small one-pasture allotments where it may be necessary to defer grazing during critical periods of plant growth or regrowth. As a result, the permittee may be burdened financially by having to lease private pasture, improve the private lands, add fencing to create an additional pasture or partner with another allotment. There are also the additional costs associated with the handling of livestock for gathering and transporting.

WILD HORSES

Impacts on the Socorro wild horse herd from the implementation of the Proposed Action would be similar to the No Action Alternative, with the exception that the Socorro RMP decisions would be in conformance with the standard for rangeland health. Based on monitoring data, the area is in fair to good condition with a static trend and meets the standard. The existing resource condition would improve as in the No Action Alternative as long as the appropriate management level of 50 head is maintained and balanced with livestock grazing and other uses.

Impacts on the Farmington herd would be similar to the No Action Alternative.

WILDLIFE

Implementing the proposed standards and guidelines under the Proposed Action would benefit wildlife in the short- and long-term in both upland and riparian areas. The improvement of riparian habitats currently functioning at risk with a downward trend would benefit wildlife, since these areas are the most diverse and productive areas. The construction of livestock management facilities outside of the riparian/wetland area would protect and improve riparian and wildlife habitats. Over the long-term, standards and guidelines would help ensure that site-specific, as well as landscape-level habitat needs are considered when developing LAPs. The proposed standards and guidelines would allow for a slight increase in actual AUMs over the long-term, but would consider and protect critical wildlife resources. Livestock would be used as a management tool to help restore and maintain sustainable habitats, increase biological diversity and vegetative productivity, and promote proper functioning uplands and riparian areas.

The field offices have identified oil and gas leasing

development and rehabilitation, Rights-of-ways and off-highway vehicle and other uses as other causes for not meeting the biotic standards. These activities and associated decisions would not be resolved under the proposed grazing guidelines, but RMP decisions would be commensurate with public health standards, thereby ensuring wildlife management issues and concerns would be recognized and evaluated to maintain and protect wildlife habitat.

36 - New Mexico and Arizona Plateaus and Mesas

Long-term benefits to big game would occur under the Proposed Action by utilizing restrictive guidelines on livestock grazing, and improving upland habitat currently in poor condition or not meeting the standard due to grazing practices. Mule deer and elk are the primary big game species benefitting from these actions. There would he an increase in the deer population through improving the quality and quantity of browse on upland sites, and creating new fawning areas. Predation can reduce fawn survival in nutritionally healthy deer populations. Elk are currently increasing in numbers, but would be controlled by the NMGF.

The quality of habitat would improve over the long-term for riparian-dependent big game species (turkey, deer, and furbearers) due to the proposed emphasis on riparian management. However, due to other limiting factors (drought) and hunting regulations, no measurable increase in populations are expected.

Allowing public access while controlling off-highway vehicle use and protecting wildlife habitat is a major concern for most field offices. Off-highway vehicle use can potentially increase the number of roads on public land, degrading big game habitat and increasing wildlife harassment and displacement. Under this alternative and associated standards for erosion and wildlife habitat, road closures would be implemented.

Upland Game and Nongame

Upland sites would improve over the long-term more rapidly from land treatments and proper grazing practices, resulting in benefits for most upland wildlife species. The continued construction of water developments would favor upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

37 - San Juan River Valley Mesas and Plateaus

Long-term benefits to big game would occur from the Proposed Action by utilizing restrictive guidelines on livestock grazing, and improving upland habitat currently in poor condition or not meeting the standards due to grazing practices.

The quality of habitat would improve over the long-term for riparian-dependent big game species (deer, furbearers, etc.) due to the emphasis on riparian management. However, due to the small percentage of riparian habitat located on public land and other limiting factors that affect big game populations, no measurable increase in populations are expected.

Allowing public access while controlling off-highway vehicle use and protecting wildlife habitat is a major concern for most field offices. Off-highway vehicle use could potentially increase the number of roads on public land, resulting in degradation of big game habitat and increasing wildlife harassment and displacement. Under this alternative and associated standards for erosion and wildlife habitat, road closures would be implemented.

Upland Game and Nongame

Upland sites would improve over the long-term due to land treatments and proper grazing practices, resulting in benefits for most upland wildlife species.
The continued construction of water developments would favor upland game bird species.
Special management for raptor nesting areas would continue. Small changes in the overall landscape while still protecting nests sites would increase the prey base for raptors.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

39 - Arizona and New Mexico Mountains

Big Game

The BLM manages very little public land within this MLRA. Under this alternative, there are several areas where the standards and guidelines would improve wildlife habitat. Upland improvement projects along with controlled grazing would improve wildlife habitat for big game species over the long-term. The southwestern part of the state has numerous natural fire occurrences. These natural events can be beneficial to resident elk herds by creating open meadow areas and increasing the amount of forage.

Upland Game and Nongame

Upland sites would improve over the long-term from land treatments and proper grazing practices, resulting in a benefit for most upland and nongame wildlife species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

41 - Southeastern Arizona Basin and Range

A small percentage of this MLRA exists on BLM lands. Upland habitat would be improved under the Proposed Action, resulting in improving Coues' whitetail deer habitat in the Southwestern corner of New Mexico.

42 - Southern Desertic Basins, Plains, and Mountains

Long-term benefits to big game would occur from this alternative by utilizing restrictive guidelines on livestock grazing, and improving upland habitat currently in poor condition or not meeting the standards due to grazing practices.

The Proposed Action would rectify historic land use practices that have caused problems such as the dewatering of streams and springs and altering or displacing big game species. Implementation of proper grazing practices, vegetative land treatments, increased water developments, and cooperative management efforts would have long-term benefits to big game habitat. Natural events (fire, flooding, etc.) that create a mosaic within the landscape and diversify the plant community would also benefit wildlife.

There would be a slight increase in the deer population through improving the quality and quantity of browse on upland sites, and creating new fawning areas. Pronghorn antelope populations are expected to increase over the long-term due to improved habitat conditions and transplants. Habitat conditions would improve over the long-term due to improved ecological conditions and movement patterns. Antelope transplants would be expected to continue in cooperation with the NMDGF and other land owners.

Competition for food and space between mule deer and the Iranian ibex would continue under this alternative. Oryx would continue to move off the White Sands Missile Range and may potentially displace mule deer and antelope because of their size and aggressive behavioral patterns.

The quality of habitat would improve over the long-term for riparian-dependent big game species (turkey, deer, and furbearers) due to emphasis on riparian management. However, because of the small percentage of riparian habitat located on public land and other limiting factors that affect big game populations, no change in populations can be expected.

Upland Game and Nongame

Upland sites would gradually improve in the short- term and fully recover in the long-term, from land treatments and proper grazing practices, resulting in a benefit for scaled quail, Gambel's quail, and dove populations. The continued construction of water developments would benefit upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

48 - Southern Rocky Mountains

A small percentage of this MLRA exists on BLM lands. Upland habitat would improve under the Proposed Action, resulting in improvement of some wildlife habitat within the MLRA.

51 - High Intermountain Valleys

Big Game

Long-term benefits to big game would occur from the Proposed Action by utilizing restrictive guidelines on livestock grazing, and improving upland habitat currently in poor condition or not meeting the biotic standard due to grazing practices. Rocky Mountain elk would continue to be a key wildlife species within the Taos field office. Critical winter range would be improved through implementation of the proposed standards and guidelines.

Upland game and Nongame

Upland sites would improve over the long-term from land treatments and proper grazing practices, benefitting scaled quail, mourning dove, Merriam's turkey, and numerous raptors and migratory bird populations. The continued construction of water developments would benefit upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

70 - Pecos/Canadian Plains and Valleys

Big Game

Short- and long-term benefits to big game would result from the Proposed Action through utilizing restrictive guidelines on livestock grazing, and improving upland habitat currently in poor condition or not meeting the biotic standard due to grazing practices. Implementation of guidelines that identify proper grazing practices, vegetative land treatments, and water developments would improve wildlife habitat for big game species over the long-term. Natural events (fire, flooding etc.) that create a mosaic within the landscape and diversify the plant community would also benefit wildlife. There would be a slight increase in the deer population through improving the quality and quantity of browse on upland sites, and creating new fawning areas. Pronghorn antelope populations are expected to increase over the long-term due to improved habitat conditions and transplants. Habitat conditions would improve over the long-term due to improved ecological conditions and movement patterns. Antelope transplants would be expected to continue in cooperation with the NMDGF and land owners.

Upland Game and Nongame

Upland sites would improve over the long-term from land treatments and proper grazing practices, benefitting scaled and bobwhite quail, mourning dove and numerous raptors, and migratory bird populations. The continued construction of water developments would benefit upland game bird species.

With the current regional emphasis on the decline of lesser prairie chicken populations, the Proposed Action would have short- and long-term benefits on approximately 24,000 acres of prairie chicken habitat that would address special habitat requirements.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public-land resident fisheries habitat over the long-term would be improved.

77 - Southern High Plains

Big Game

The BLM manages very little public land within this MLRA; however, the Proposed Action would improve wildlife habitat by establishing livestock management guidelines that would be compatible with wildlife resources.

Upland Game and Nongame

Upland sites would improve over the long-term from land treatments and proper grazing practices, benefitting most upland and nongame wildlife species.

Waterfowl/Fisheries

Habitat quality for waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

SPECIAL STATUS SPECIES

Under the Proposed Action, the focus of management and application of grazing guidelines would occur on land not meeting the biotic standard, and public land not meeting the upland standard, due to current grazing practices. It is more efficient to manage an entire pasture than to manage a small portion of a pasture. Managing the smaller portion would likely incur large costs for fencing, establishment of water sources, and other management facilities. These areas are contained primarily within the desert biome of MLRAs 36, 37 and 42 and the grassland biome of MLRA 70. There would be benefits to a portion of the 95 species occurring in the improved areas of the desert and grassland biomes managed under this alternative. This alternative would project threatened and endangered species by making sure that the approximately 4,285,000 acres in areas of late-seral and PNC ecological status not decline in ecological condition. These areas, in many cases, provide suitable habitat to support special status species with late-seral habitat requirements.

The greatest benefits to special status species resulting from this alternative would be the improvement of riparian conditions on 16 riparian segments in the short-term and 52 riparian segments in the long-term. Many of the 76 special status species associated with public land riparian areas and their aquatic systems would benefit from improvements in riparian condition under this alternative.

Areas past the threshold of improvement have lost the capability to recover toward PNC within the long- term of this analysis, even in the absence of grazing. In some cases, the PNC has shifted toward a different community. Even with chemical or mechanical manipulation, these areas may never reestablish a community like the lost native community. This is due to the change in ecosystem functionality occurring with the combined impacts of soil loss and vegetative community shifts associated with major disruptions caused by past land use practices and climatic change. Examples of these are former desert grasslands which are now mesquite sand dunes and creosote bush/desert pavement communities of the Chihuahuan Desert MLRA 42. Special status species that formerly used these areas would have differing abilities to recolonize these habitats as the relative condition improves with subsequent management. Some species, such as obligate grassland species like Baird's sparrow, may never be able to return to former habitats. Other areas, such as the shinnery oak/dunes areas of MLRAs 42, and 70 retain a profound capability to return to previous grassland dominance, and the ability to support grassland species, such as the lesser prairie chicken.

RECREATION

Recreational visitor use would continue to increase, particularly in areas where urban visitors recreate. Developed recreation sites would be especially subject to increased use. The recreational use levels on a statewide basis are not expected to be impacted by the standards or the livestock grazing guidelines. The Proposed Action would provide for increased management of off-highway vehicle use on 4,600 acres in MLRA 36 and 7,300 acres in MLRA 42. Although these areas may be important to off-highway vehicle visitors frequenting them, on a statewide basis they represent a small percent of the total public land acreage.

Increased recreation supervision would occur on 10,600 acres in MLRA 36, 500 acres in MLRA 37, and 400 acres in MLRA 42, where recreational activities are keeping the area from meeting the upland standard.

Considering that there may be overlap on many of the acres identified as having recreation conflicts with the standards, the additional restrictions would occur on less than 11,100 acres-a minor impact to the recreational

use of the public lands on a statewide basis.

It is expected that the present conflict between livestock use and the developed recreational area at the Wild Rivers Recreation Area would be resolved over the next five years. As additional recreational sites are developed, livestock are expected to be excluded.

The BLM would be expected to resolve livestock grazing conflicts on riparian areas. In the long-term, an additional 52 riparian segments are expected to improve in condition, improving quality of visits for recreationalists on the public lands.

Not all of the acres are failing to meet the standards due to livestock grazing. However, many acres are expected to have an improved quality of visits for recreationists due to the improved native vegetation and animal communities.

WILDERNESS

Where sites not meeting the standard are included in WAs or WSAs, they would be expected to be a high priority for improved management. The review of WAs and WSAs to determine if they meet the standards should help determine what management changes could be needed.

However, in WAs and WSAs, the Wilderness Act and BLM management guidelines for these areas would limit some of the tools available for management. For example, the range improvements that are normally applied to support improved livestock grazing management and land treatment techniques may not be permitted in WAs and WSAs. However, if the WAs and WSAs meet the standards, there would be no impact wilderness values.

CULTURAL RESOURCES

Under the Proposed Action damage to or loss of archaeological sites in both upland and riparian areas due to erosion would be reduced, commensurate with reductions in erosion. Location of future livestock facilities away from riparian-wetland areas may reduce future damage to archaeological sites, often concentrated in these areas; however, facilities already located near these areas would continue to contribute to archaeological site damage.

PALEONTOLOGY

Under the Proposed Action damage to or loss of paleontological sites in both upland and riparian areas due to erosion would be reduced, commensurate with reductions in erosion.

REALTY/LAND USE

Local areas are impacted by land and realty activities creating both short- and long-term surface disturbances by reducing vegetative cover and forage, increasing erosion or sediment load, degrading wildlife habitat, and increasing the potential for the introduction or spread of noxious weeds. Stipulations, if complied with and successful, would mitigate impacts on a local basis by reducing soil erosion and sediment load, restoring ground cover, restoring diversity of plant species, protecting threatened and endangered or special status species and their habitats, minimizing the introduction or spread of noxious weeds, and protecting important cultural or historic resources. The impacts associated with land and realty surface disturbing activities would continue under the Proposed Action.

The implementation of standards and guidelines under this alternative may require closer scrutiny of future surface-disturbing activities. This may require additional field checks in areas that have been identified as not meeting standards. Projects in areas not meeting the standards would be monitored as needed to ensure compliance with stipulations, especially those including reclamation and rehabilitation. In areas where reclamation efforts have been determined to be unsuccessful, coordination with BLM, authorized users, and allottees may be necessary to determine the cause and identify remedies for the failed reclamation and rehabilitation.

Additional work may be needed to bring disturbed areas up to prescribed standards, which could increase the companies' costs on individual projects if they are required to implement new or additional mitigation measures on future projects. Allottees may have to move livestock to other pastures or adjust AUMs or seasons of use if it is determined that grazing needs to be deferred in a disturbed area to allow ample time for plant regrowth. These changes would be determined by BLM on a case-by-case basis in coordination with the allottee.

If the Proposed Action standards were adopted, emphasis would be placed on reseeding disturbed areas with native plant species. Currently, reseeding is required on disturbed areas, but standard seed mixtures established locally by BLM offices are used. Current seed mixtures are not limited to native species but do include species that can provide plant cover, stabilize the soils, provide desired forage for wildlife, are suitable to soil and climate conditions, and are readily available. The companies' cost of reclaiming a disturbed area may increase if native seed sources are required. Costs also would be affected by the availability of seed.

If the standards and guidelines go into effect, it is anticipated that the BLM, in some areas of the state, would receive increased applications for land exchanges or sales. However, due to the length of time it takes to complete land ownership adjustments, it is not expected that the number of exchanges or sales completed each year would greatly increase from the number currently processed. Any public lands disposed of through exchange or sale would no longer be managed by the BLM and therefore would not be subject to the standards and guidelines. Work is expected to continue on acquiring easements and upgrading or closing existing roads as identified through the land use planning process, (e.g., the existing RMPs).

MINERAL RESOURCES

Implementation of the Proposed Action would not affect the availability of mineral resources. Under this alternative, BLM would not amend mineral resource decisions in the existing land use plans. The existing statutes and regulations under which federal mineral resources are developed place legal or regulatory constraints on the application of public land health standards. Because a relatively high environmental standard already applies to mineral resource development, the application of the proposed standards should have no additional effects on most mineral operations. Impacts would occur if more restrictive conditions for use and rehabilitation of disturbed areas are applied as part of use authorizations or permits. The potential impacts of these variations are discussed below.

Salable Minerals (Mineral Materials)

Application of the proposed standards would not change the way existing mineral material sites are used and developed. However, depending on the condition of the land relative to a proposed standard, an Authorized Officer might deny the use of new sites. Because no areas would be closed to this type of mineral entry, any denial of new development would have to be justified on a permit by-permit basis; therefore, it is not possible to locate or quantify the extent of this impact. Because the regulatory discretion to deny mineral material disposal for environmental reasons currently exists, the future implementation of proposed standards should not cause more denials than without the standards.

Locatable Minerals

The application of public land health standards would be limited and constrained by the Mining Law of 1872 and the regulations in 43 CFR Part 3809. The standards may supply additional criteria for developing larger mines. There are few operations of this type on public land in New Mexico. As stated under the No Action Alternative, these operations are currently subject to federal environmental degradation standards and strict standards of the State Mining Law. Therefore, development of mining claims would not be held to higher standards, and the application of the proposed standards would not make the operations more or less profitable.

The "small miner" operations are subject to an unnecessary and undue degradation standard the same as larger permitted mines. This standard implies that "necessary and due" degradation is allowed to continue. Unnecessary and undue determinations by BLM are based on proficient operations of a similar character, effects on other resources and land uses, and proposed mitigation and reclamation measures. As long as a miner is not creating unnecessary and undue degradation, and BLM does not change the regulatory meaning, the public land health standards would have no impact on their operations.

Leasable Minerals

Leasing decisions would not change; therefore, the implementation of public land health standards would not affect the leasing of mineral resources. Lease applications and expressions of interest in a lease would not be turned down or otherwise be impacted by the proposed standards. The BLM is not proposing to close any additional acreage to leasing, and is not

proposing to change existing land use decisions by increasing the amount of acreage where leases would be issued with a no-surface occupancy stipulation. Lease rights and the right to access the minerals would not be affected. The proposed standards would not cause additional impacts on current permit holders. Additional no surface-occupancy conditions could not be imposed by BLM on existing leases without negotiating such a change in the lease instrument with the lessee.

There could be potential impacts in those situations where BLM has the discretion to impose seasonal restrictions (or delay), or to vary the specific location of a site. These impacts are germane to the oil and gas program where BLM may relocate proposed well sites up to 200 meters and restrict drilling operations up to 60 days per year without affecting lease rights. This discretion already exists, and could become more frequent as BLM takes action to improve public land health. The potential impacts would be caused by delays, increased cost of access, and disruption of development plans. Based on lease rights and the existing environmental standards which are applied to leasable mineral operations, the proposed standards should not cause additional permit denials. It would not be necessary to deny lease permits based on a standard because standards already exist to mitigate impacts caused by leasable mineral development. Leasable mineral development would not be subject to new or higher standards than those which currently exist.

The potential impacts to mineral development would relate to timing and the exact location of a site, and could vary reclamation procedures from those in current use. This, in and of itself, would not affect the ultimate production of recoverable mineral reserves. There would be no discernible change in mineral resource production due to implementation of the public land health standards. There would be no change in the amount of acreage made available for mineral development, and no discernible effect on revenue generated by mineral commodity sales.

NATIVE AMERICAN CULTURAL ISSUES

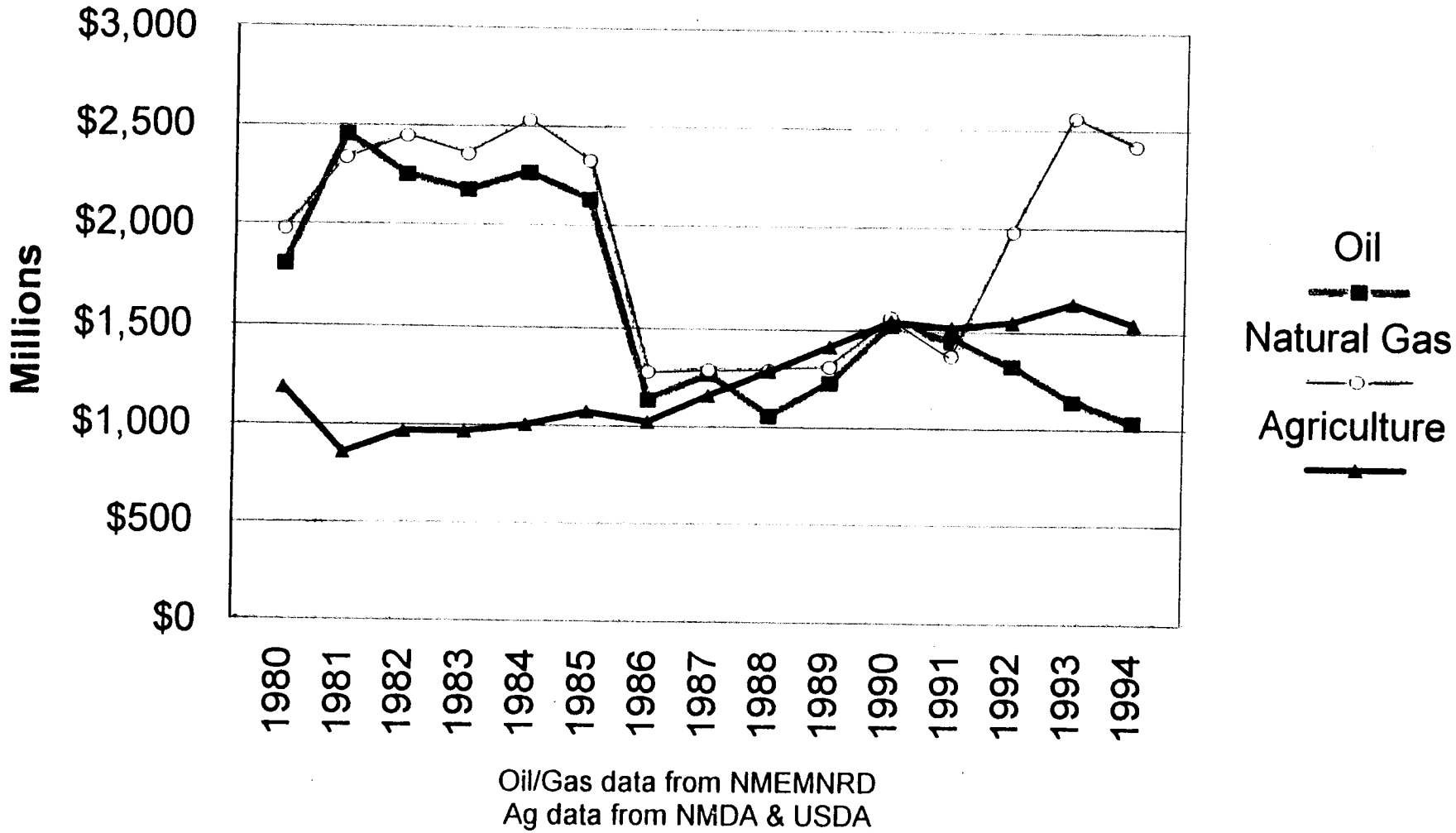
Native American concerns would continue to be protected under the law as stated in Chapter 3. Emphasis on the use of native plant species and improved habitat would ensure continued or enhanced availability of plant and animal species traditionally used by Native Americans, to the extent that these measures are effective.

ECONOMIC

The analysis in this section refers to the state of New Mexico in terms of economic impact; however, the impacts will be most imposing upon counties with greater than 10% BLM land ownership. Counties with greater than 10% BLM land include 17 counties (Table 3-10), this is over one half of the counties within New Mexico. The primary endogenous sectors associated with BLM lands include oil, gas, and agriculture. Of these sectors, agriculture has proven through time to be the most stable (Figure 4-3). This sector is comprised primarily of individuals and families with sufficient diversity to have enterprises broad enough to capture a favorable market price for one or several agriculture commodities. Whereas, oil and gas sectors are, on the majority, large corporations concentrated in a single commodity. Both sectors are dependent upon a natural resource, but the families in agriculture have an investment that forces them to ride out the price cycles, rather than idling livestock, equipment, and land during the trough portions of the price cycle. Therefore, economic impacts from implementing guidelines associated with grazing standards on BLM land, are essentially imposed upon the stable portion of New Mexico's rural counties,

FIGURE 4-3

NM OIL AND GAS SALES VALUE AND CASH RECEIPTS FOR AGRICULTURE (ALL COMMODITIES)



Oil/Gas data from NMEMNRD
Ag data from NMDA & USDA

which comprise more than half of the State's counties.

The initial (first year) total economic impacts to the state of New Mexico economy were negative regardless of the alternative, assumptions, and options. The major difference between the assumption that all ranches stayed in business and 22% of them converted to real estate was the loss of 22% of the AUMs from the economy. Also, the assumption that 20% of the AUMs would be removed from allotments, that did not meet the standard, had a greater negative impact than the no AUM reduction option, because of the loss of the value of production from the reduced AUM's in addition to the operational adjustments the allottee was forced to make. In the case where the BLM provided 100% and 50% of the funding for the improvements the economic impacts were identical, because the BLM provided funding for the materials in both cases. Under the option of the rancher funding 100% of the improvements necessary to meet the standards; title to structural range improvements authorized by a Cooperative Agreement for Range Improvements would be shared by the United States and cooperators in proportion to the actual amount of there respective contributions to the initial construction to provide the rancher the necessary incentive to install the specific improvements. Title to no structural range improvement(s) authorized by Cooperative Agreement would be in the United States.

Under RAC Alternative and the scenario that all ranches stayed in business, the least economic impact was when there were no AUM reductions. The initial loss of economic activity (Table 4-1, Table 4-2) was $4 million of which approximately $1 million of the loss was in personal income. An initial loss of 25.73 FTEs was also estimated under this alternative. As compared to the $19.8 million loss when 20% of AUMs were reduced and 22% of the ranches converted to real estate. These impacts were for a single year and were aggregated over a seven year period to quantify the cumulative impacts to year seven.

Year 10 cumulative impacts included an authorization of additional AUMs, which allowed the ranch unit to restock any AUMs that were reduced plus 1/3 of the AUMs toward a specific numeric target. The analysis revealed that it required a minimum of 10 years after the initial reductions to yield a positive return in employment when all of the ranches stayed in business. The minimum impacts after 10 years occurred when none of the ranches converted to real estate, no AUMs reduced, and the ranch financed the improvements. The greatest economic loss occurred when there was a 20% reduction in AUMs and BLM financing of improvements under the scenario of 22% of ranches not meeting standard and converting to real estate.

After the tenth year of implementation of the guidelines, the negative impacts due to implementation of improvements lessened to only maintenance and repairs under the RAC Alternative. The year to year economic impacts changed from all negative to positive impacts in FTEs, but personal income continued to decline, because the range livestock sector expenditures were still larger than the baseline due to repairs and maintenance which more than offset the increase to the wholesale sector.

In year 14 under the RAC Alternative, it was assumed another 1/3 of the specific numeric target AUMs were authorized on the BLM permits/leases that had previously not met the standard. This continued the positive trend in economic impacts. Minimum impacts (Table 4-1) occurred when there were no reduction of AUMs and the rancher funded 100% of the improvements. These impacts included: losses of $20 million in economic activity, losses of almost $7.6 million in personal income, and a gain of 2.7 FTEs. The greatest economic loss occurred when 22% of the ranches converted to real estate and there was a 20% reduction of AUMs and the BLM funded the cost of improvements (Table 4-2). These impacts included: a loss of almost $131.5 million in economic activity, a loss of $21.8 million in personal income, and a loss of 104 FTEs.

Year 21 was the final year of analysis; it was assumed that the allotment should have achieved an ecological condition surpassing the standards and the allotment would be operated at the full AUM specific numeric target. The economic impacts varied widely dependant upon the assumptions, and options analyzed. It was recognized that the actual impacts would be in the range between the minimum and maximum economic impacts estimated, since there would be a wide variety of allotment conditions, improvement construction, financing of the improvements, and rancher reactions. Therefore, it was believed that the economic impacts would actually be in a range for this alternative (Tables 4-1

Table 4-1: RAC Alternative - Economic Impacts (cumulative)				
All range livestock- no ranches converting to real estate				
Year 1	**RAC, No BLM AUM Reduction**		**RAC, 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(4,133,000)	(4,126,000)	(11,533,000)	(11,523,000)
Personal Income	(827,000)	(1,050,000)	(1,979,000)	(2,229,000)
Employment	(27.66)	(25.73)	(105.28)	(101.69)
Year 14	**RAC, No BLM AUM Reduction**		**RAC, 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(21,141,000)	(20,097,000)	(24,179,000)	(24,081,000)
Personal Income	(5,559,000)	(7,635,000)	(6,349,000)	(8,849,000)
Employment	.80	2.73	7.82	11.41
Year 21	**RAC, No BLM AUM Reduction**		**RAC, 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	21,275,000	22,319,000	74,520,000	74,617,000
Personal Income	357,000	(1,800,000)	8,388,000	5,888,000
Employment	54.84	56.77	61.86	65.45

Table 4-2: RAC Alternative - Economic Impacts (cumulative)				
All range livestock ranches w/22% converting to real estate				
Year 1	**RAC, No BLM AUM Reduction**		**RAC, 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(14,104,000)	(14,098,000)	(19,840,000)	(19,834,000)
Personal Income	(2,312,000)	(2,485,000)	(3,205,000)	(3,401,000)
Employment	(131.00)	(128.50)	(190.01)	(187.24)
Year 14	**RAC, No BLM AUM Reduction**		**RAC, 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(114,402,000)	(114,345,000)	(131,511,000)	(131,442,000)
Personal Income	(18,954,000)	(20,691,000)	(21,872,000)	(23,827,000)
Employment	(92.21)	(89.71)	(104.29)	(101.52)
Year 21	**RAC, No BLM AUM Reduction**		**RAC, 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(57,988,000)	(57,931,000)	(46,285,000)	(46,216,000)
Personal Income	(9,944,000)	(11,744,000)	(8,335,000)	(10,290,000)
Employment	(16.79)	(14.29)	(28.87)	(26.10)

and 4-2). An important assumption in the analysis was that allotments not meeting the standard would be operated at a specific numeric target of AUMs at the end of 21 years, without this assumption all impacts would be negative.

Under the RAC Alternative the range for economic activity was between a loss of almost $58 and a gain of $74.6 million. Personal income varied from a loss of almost $12 to a gain of $8 million. The range for jobs were expected to vary from a loss of 29 FTEs and a gain 66 FTEs.

Revised Economic Analysis

This analysis recalculated the economic impacts after the methodology modifications. It includes the allotments meeting the standard moving towards a specific numeric target along with the allotments that did not meet the standard. This assumes that all BLM allotments within the State of New Mexico are grazing at the historical numeric target levels by year 21.

Under this modified methodology the initial (year 1) and Year 7 impacts are identical to the impacts before the modification. However, after year 7 the negative impacts are less than the initial analysis due to the additional allotments moving toward a specific numeric target.

In year 14 under the RAC Alternative, it was assumed another 1/3 of the specific numeric target AUMs were authorized on all of the BLM permits/leases. These impacts included: gains of $9 million in economic activity, losses of almost $3 million in personal income, and a gain of 44 FTEs (Table 4-3). The greatest economic loss occurred when 22% of the ranches converted to real estate and there was a 20% reduction of AUMs and the rancher funded the cost of improvements (Table 4-4). These impacts included: a loss of almost $142.5 million in economic activity, a loss of $25.3 million in personal income, and a loss of 47 FTEs.

Year 21 was the final year of analysis; it was assumed that the allotment should have achieved an ecological condition surpassing the standards and the allotment would be operated with full historic numeric target AUMs. The economic impacts varied widely dependant upon the assumptions, and options analyzed. It was recognized that the actual impacts would be in the range between the minimum and maximum economic impacts estimated, since there would be a wide variety of allotment conditions, improvement construction, financing of the improvements, and rancher reactions.

Therefore, it was believed that the economic impacts would actually be in a range for this alternative (Tables 4-3 and 4-4). An important assumption in the analysis was that all of the allotments would be operated at the specific numeric target AUMs at the end of 21 years, without this assumption all impacts would be negative.

Under the RAC Alternative the range for economic activity was between a loss of almost $58 and a gain of $80 million. Personal income varied from a loss of almost $12 to a gain of $9 million. The range for jobs were expected to vary from a loss of 29 FTEs and a gain 125 FTEs.

HUMAN DIMENSION

Financial, Social and Cultural Impact Analyses

The RAC Alternative has four standards, one of which is Sustainable Communities and Human Dimension. The Sustainable Communities and Human Dimension Standard is on equal footing with the three physical and biological standards.

Financial Impacts

Based on the analysis of the four New Mexico regions, the ranches not meeting the standard that have a heavy dependency on public lands would be most affected by the BLM management changes. These ranchers may not be able to sustain their ranch operations into the next year. The affected ranchers would be less able to meet their overhead expenses, especially given their increased costs of improvements and maintenance.

Faced with short-term financial loss the rancher's options to reduce substantial financial risk are:

Table 4-3: RAC Alternative - Economic Impacts (cumulative)		
All range livestock-no ranches converting to real estate		
Year 1 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(4,133,000) (4,126,000) (827,000) (1,050,000) (28) (26)	(11,533,000) (11,523,000) (1,979,000) (2,229,000) (105) (102)
Year 7 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(28,930,000) (28,878,000) (5,792,000) (7,351,000) (28) (26)	(80,728,000) (80,660,000) (13,853,000) (15,603,000) (105) (102)
Year 10 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(33,053,000) (32,980,000) (7,002,000) (9,229,000) (5) (3)	(76,786,000) (76,688,000) (13,879,000) (16,380,000) 0 4
Year 14 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	8,101,000 9,144,000 (998,000) (3,073,000) 42 44	(65,577,000) (65,479,000) (12,605,000) (15,105,000) 67 71
Year 21 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	79,757,000 80,801,000 9,452,000 7,324,000 96 98	6,642,000 6,721,000 (2,360,000) (4,860,000) 121 125

Table 4-4: RAC Alternative - Economic Impacts (cumulative)		
All range livestock ranches w/22% converting to real estate		
Year 1 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(14,104,000) (14,098,000) (2,312,000) (2,485,000) (131) (129)	(19,840,000) (19,834,000) (3,205,000) (3,401,000) (190) (187)
Year 7 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(98,725,000) (98,685,000) (16,186,000) (17,402,000) (131) (129)	(138,882,000) (138,834.000) (22,437,000) (23,805,000) (190) (187)
Year 10 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(129,916,000) (129,859,000) (21,251,000) (22,989,000) (97) (94)	(170,143,000) (170,074,000) (27,572,000) (29,527,000) (111) (108)
Year 14 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(85,161,000) (85,104,000) (14,392,000) (16,129,000) (52) (49)	(111,864,000) (142,460,000) (23,322,000) (25,277,000) (50) (47)
Year 21 Capital Outlay	RAC, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	RAC, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(57,988,000) (57,931,000) (9,944,000) (11,744,000) (17) (14)	(46,285,000) (46,216,000) (8,335,000) (10,290,000) (29) (26)

find additional off ranch income
find private land to rent for livestock, if available
large ranches could sell off their assets
acquire other government lands to use, if available
reduce size of operations
sell their land and water rights (liquidate)

Financial Impacts by Region: The remainder of this section discusses financial impacts by region, summary financial threshold tables and summary. The financial threshold analysis is based on the 10-year-average (See Appendix D).

Central Mountain Region: The extra-small ranch not meeting the standard would no longer meet the Financial Threshold for Production; therefore, grazing on the BLM permit portion would not be financially viable, at least for the short-term. The small, medium, and large ranches not meeting the standard could still meet the Financial Threshold for Production, but at a much reduced level (losses of gross margin of 80%, 34%, and 22% respectively) (Table 4-5). These ranches not meeting the standard would be able to meet the Financial Threshold for Risk (Table 4-6). The affected large ranches could continue financial activity associated with the BLM permit, assuming there are no reductions in BLM AUMs, and/or the rancher is not required to bear the costs of improvements.

Northwest Region: The small ranches not meeting the standard would no longer meet the Financial Threshold for Production; therefore grazing on the BLM permit portion would not be financially viable, at least for the short-term. The extra-small, medium, and extra-large ranches not meeting the standard could still meet the Financial Threshold for Production, but at a much reduced level (losses of gross margin of 78%, 49%, and 50%, respectively) (Table 4-5). The ranches not meeting the standard would not be able to meet the Financial Threshold for Risk (Table 4-6).

Southeast Region: All five ranch categories not meeting the standard could still meet the Financial Threshold for Production, but at a much reduced level (losses of gross margin: extra-small-68%; small-60%; medium-48%; large-42%; and extra-large-36%) (Table 4-5). However, only two of the ranch sizes not meeting the standard would be able to meet the Financial Threshold for Risk (large and extra-large) (Table 4-6). The affected large and extra-large ranches could continue financial activity associated with the BLM permit, assuming there are not reductions in BLM AUMs, and/or the rancher is not required to bear the cost of improvements. Only the extra-large ranch could continue financial activity associated with the BLM permit if either BLM AUMs are reduced, or the rancher is required to bear the cost of improvements, but not both.

Southwest Region: All five ranch categories not meeting the standard could still meet the Financial Threshold for Production (Table 4-5), but at a much reduced level (losses of gross margin: extra-small-55%; small-60%; medium-46%; large-31.5%; and extra-large-22%). The ranches not meeting the standard would not be able to meet the Financial Threshold for Risk (Table 4-6). If a 20 percent reduction in BLM AUMs is added to the management changes, all financial activity wouldl probably cease from affected BLM permits on all small ranches not meeting the standard as well. The affected medium, large, and extra-large ranches could continue financial activity associated with the BLM permit if either AUMs are reduced, or the rancher is required to bear the cost of improvements, but not both.

Financial Summary: The RAC Alternative has a potential negative effect on the current condition of ranch operations. The majority of classes of public land ranches have the potential to be put at financial risk. In the short-term, this alternative would be less adverse financially to the affected ranchers than the Fallback Alternative, but more adverse than the County Alternative. In addition to financial impacts to the individual ranchers, local governments and agencies would potentially lose taxes and fees from reduced numbers of livestock, private property assessments and improvements. In the long-term, financial stability is dependent upon mitigation measures to reduce the financial burden on the ranchers, as well as local governments and agencies.

Social Impacts

The foundation for determination of the affects to social indicators can best be evaluated by looking at economic and financial information. Quantification of social impacts is not possible due to lack of being able to identify specific lands not meeting the standards.

Synopsis Table 4-5 RAC Alternative Affected ranches not meeting the standard, Financial Threshold for Production				
	Central Mountain Region	**Northwest Region**	**Southeast Region**	**Southwest Region**
Extra-small ranches	Not Meeting	Meeting	Meeting	Meeting
Small ranches	Meeting	Not Meeting	Meeting	Meeting
Medium ranches	Meeting	Meeting	Meeting	Meeting
Large ranches	Meeting	--n/a--	Meeting	Meeting
Extra-large ranches	--n/a--	Meeting	Meeting	Meeting

Note: The information in the above table assumes: 1) there will be not reduction in BLM AUMs, and 2) the rancher is not required to bear the cost of improvements.

Source: Southwest Center for Resource Analysis Report - prepared by Rita D. Harbison, M.B.A. -WNMU.

Synopsis Table 4-6 RAC Alternative Affected ranches not meeting the standard, Financial Threshold for Risk				
	Central Mountain Region	**Northwest Region**	**Southeast Region**	**Southwest Region**
Extra-small ranches	Not Possible	Not Possible	Not Possible	Not Possible
Small ranches	Not Possible	Not Possible	Not Possible	Not Possible
Medium ranches	Not Possible	Not Possible	Not Possible	Meeting
Large ranches	Meeting	--n/a--	Meeting	Meeting
Extra-large ranches	--n/a--	Not Possible	Meeting	Meeting

Note: The information in the above table assumes: 1) there will be no reduction in BLM AUMs, and 2) the rancher is not required to bear the cost of improvements.

Source: Southwest Center for Resource Analysis Report - prepared by Rita D. Harbison, M.B.A. -WNMU.

Thus, the level of impact at the individual, family and community level can not be determined at this time. Based on economic and financial data available, only the direction of impact can be estimated. Table 4-7 shows the expected direction for social effect indicators on rural communities with dependence on public land grazing.

Based on these estimates, this alternative could have short-term adverse impacts on the affected ranches. The degree and intensity of impacts would be greater than the County Alternative but less that the Fallback Alternative.

Family Stability

Family stability is the ability of the family to function in harmony without family strife, such as domestic violence and divorce. One of the greatest impacts to family stability is the loss of livelihood, according to empirical social research (Blehar, 1979 and Fagin and Little, 1984). With the loss of employment, the breadwinner is relegated from a position of dignity and worth to low self esteem (Borrero, 1980).

For those ranches that have lands that do not meet the standards and have to adjust their grazing operations to be in concert with the grazing guidelines, the additional costs of range improvement construction, rotating livestock or finding additional pasture would result in additional costs and less return to support the family, in the short-term. Depending on the individual family's circumstances, impacts to ranch families could be far reaching. A potential exists for a ranch family to be put at financial risk and some ranchers might go out of business. This could put the family through a threshold where divorce, crime, suicide, alcohol and family violence break down family stability. Where the family has more stress than it can endure, the family might leave the rural community or perhaps reduce its role in the community.

A reasonable projection of family stability is personal income (Branch, et al., 1982). Based on the economic analysis, the statewide personal income generated from public land livestock grazing is expected to initially drop, but then increase under this alternative. For those families that are resilient enough to make it through the short-term, they would have improved financial resources. The family stability would be expected to improve in the long-term.

Rural Community Stability

Rural community stability is the capacity of the rural community to absorb the rate and magnitude of change. Employment provides a measure of the impact on rural community stability (Branch, et al., 1982). The exact impacts on employment can not be determined at this time. According to the Economic Impact Analysis discussed in the previous section the potential short-term employment loss from the RAC

Table 4-7
Direction of Social Indicators based on RAC Alternative

Social Indicators	Short-term	Long-term	Measurement
Family Stability	Downward	Upward	Personal Income
Rural Community Stability	Downward	Upward	Employment and Census
Local Government Stability	Downward	Upward	County Budget
Agricultural Land Use	Downward	Upward	Total Acres

Alternative is 190 jobs. These jobs are hired help; most of these ranches are family run operations with the family contributing most of the labor. Over 400 ranches could be put at financial risk under the RAC Alternative. Based on typical ranch characteristics, if the average ranch family size is 3 members, and on the average 2.5 family members work on the ranch (Fowler, 1993); multiply that times 400 ranches for a total of 1000 family jobs that would be potentially adversely affected. Combining the family jobs with the wage jobs, 1190 jobs could potentially be affected.

Small isolated communities are more vulnerable due to weaker links to centers of political and economic influence and a less flexible job base. Because of this, the smaller communities are more likely to experience unemployment, increased poverty, and social disruption (Range Reform '94). Social mobility, eroding the agrarian way of life, and out-migration of moderate to low income and/or ethnic minority groups and communities could be accelerated. If employment losses are concentrated in a few communities and if other factors contribute to low community resistance, the result may be a less stable community. However, if employment impacts are dispersed statewide, the destabilization to the rural communities would be less. Rural community stability could improve in the long-term, through increased employment.

Local Government Stability

Local government stability is the ability to provide services such as education, medical care, emergency services, environmental services, law enforcement, fire protection, water, roads, and waste services. In rural counties, these services are often dependent upon land value, agricultural production and the taxes they generate. When these services can no longer be provided due to the loss of revenues, adjustments in the quality or quantity of services must be made. This may result in a community passing through a threshold for local government services, as typically schools are consolidated with larger school systems when budgets are not adequate. When schools are consolidated, their ability to foster community cohesiveness declines (Jobes 1986).

A reasonable measure of local government stability is employment, agricultural products and agricultural land. They provide a tax base for the county budget. Statewide, employment generated from public land livestock grazing is projected to drop in the short-term. The degree of impact to local government would depend on whether the effects are concentrated or dispersed among communities. The local government stability could be expected to improve in the long-term with an improved tax base.

Agricultural Land Use

Agricultural land use is the total acres of land devoted to producing crops and raising livestock. Under this alternative, it is expected that at least some of the ranchers could find the short-term impacts to their livestock grazing operations too great and they would select the option to go out of business rather than continue livestock grazing operations. Thus, a reduction in acreage of agricultural land use could be expected in the short-term. In the long-term, the ranches could be sold to new livestock operators and as land conditions improve, the land use devoted to agriculture could increase.

Cultural Impacts

If changes impact the traditions, heritage, attitudes, beliefs and values, the culture is affected. For this analysis cultural impacts cannot be quantified and are best evaluated by looking at feedback information. The following two methods are utilized in this analysis:

public polls
public comments

In a poll conducted by the University of New Mexico's Public Policy Center, a substantial majority (over 75%) of New Mexico citizens believe it to be moderately to extremely important to preserve ranching as a way of life in the State. However, the same poll identified that 49 percent view environmental preservation as the top priority and 22 percent view recreational use as the top priority. Thus, approximately 71 percent would support a program that provides for environmental enhancement or recreational opportunities.

Rural Values, Attitudes and Beliefs

Most of the public land ranches in New Mexico are family run businesses, originating from three land based cultures (Hispanic, Native American and Anglo-Celtic) discussed in Chapter Three. Where reduced revenues

force individuals from their traditional manner of living, the ranch operation is impacted adversely. This affects the extended families, which in turn, affects the ranching based cultures. The sense of place with its association with a sense of well-being and community stability would be reduced for the ranching communities if adverse impacts are concentrated.

The rural communities of the arid southwest are made up of people who share beliefs and values which are, if not embodied by, closely linked to the culture of ranching (Smith, 1997) People who ranch rely on their interaction with the public lands for the centering and stabilizing of the lifeway. As the individuals who ranch are displaced by increased economic pressures and/or the demand for changing uses, the values of the communities as a whole begin to fade in the descent toward a more homogenous national monoculture. This can be particularly important for Native American and Hispanic ranchers from Northern New Mexico where livestock operations tend to be vulnerable due to their small size. Additionally, the Anglo-Celtic culture cannot exist without grazing cattle in the highlands (McWhiney, 1988).

Of the commentors on the Draft RMPA/EIS reflecting rural or agricultural values, approximately 72 percent supported the County Alternative. They expressed that it is important to have the Human Dimension Standard but expressed concerns over short-term economic impacts from the RAC Alternative. They supported the County Alternative because of its greater emphasis on the Human Dimension.

Environmental Values, Attitudes and Beliefs

The poll conducted by the University of New Mexico's Public Policy Center found that 49 percent of New Mexico citizens believe environmental preservation to be the top priority. Based on their commitment that environmental preservation is their number one priority, it is reasonable to group these individuals into a culture.

Of the commentors on the Draft RMPA/EIS reflecting environmental values are important, approximately 47 percent supported the Fallback Alternative. They expressed concern that the Human Dimension Standard of the RAC Alternative placed too much emphasis on short-term economic considerations and they preferred the Fallback Alternative.

Conclusion

Both rural and environmental interests have suggested other alternatives, but view the RAC Alternative as being more satisfactory than another alternative. Thus, both view the RAC as a middle ground alternative.

Table 4-8 shows the expected direction for cultural indicators. The RAC Alternative provides for maintenance of ranching as a way of life in the State and for physical and biological environmental enhancement and improved recreational resources on the lands currently not meeting the standards. Therefore, the alterintive is provides for the maintenance and improvement of qualities that a majority of the New Mexico citizens value.

Table 4-8 **Consistency with Cultural Indicators - RAC Alternative**		
Cultural Indicators	**Short-term/Long-term**	**Measurement**
Rural Values, Attitudes and Beliefs	Neutral	Comments
Environmental Values, Attitudes and Beliefs	Neutral	Comments

COUNTY ALTERNATIVE

VEGETATION

Upland Vegetation

Under the County Alternative the focus of management and the application of grazing guidelines would occur on public lands that do not meet the standard due to grazing. Changes in management would include fencing and chemical treatments as well as possible deferment on areas not meeting the standard. In the short-term, little improvement would be expected. However, in the long-term, measurable improvement in vegetative cover and composition would be expected due to grazing management practices. Additionally, vegetation would be enhanced through the use of mechanical and chemical manipulations in both the short- and long-term. These improvements would occur mostly within the desert and woodland biomes in MLRAs 36, 42, and 70.

Riparian Vegetation

Under the County Alternative, riparian communities and vegetation on 112 riparian segments, which are classified as non-functional and functional at risk with a downward trend or where the trend is not apparent (stable), would not meet the standards. These areas are affected, at least in part, by grazing activities. Management efforts in the short-term would improve 13 segments. Of this total, six segments would improve to proper functioning condition. In the long- term, 26 areas would improve to proper functioning condition. Improvement of other areas would be limited by the fragmented distribution of BLM riparian areas and the lack of coordinated watershed management efforts.

SOILS

With intense management under this alternative, there would be a continued slow improvement over the long-term in upland soil conditions where soils are more productive, such as Mollisols, Alfisols, and moderately fine textured Entisols. On poorer sites, and with less intensive management, there would be little or no change over the long-term in the health of the upland soils except in response to drought or additional moisture conditions. No changes are expected for either case over the short-term. There would be slightly more overall improvement than the No Action Alternative due to implementation of grazing management guidelines.

Over half of the uplands not meeting the standard for this alternative are in MLRA 42; however, the soil response to management in this MLRA would be slow. More profound response would come from the better sites such as those in MLRAs 36 (northern part); 39, 41, 48A, 70 (northern part); and the gently sloping uplands of MLRA 77. These expected gains could actually be slower or less than those described for the No Action Alternative if the human cultural and economic dimensions of this alternative are given equal or greater weight than achieving overall public land health.

WATER

In the long-term, continued implementation of BMPs to reduce NPS pollution and riparian area management would promote reductions in erosion and sediment production from public lands and slowly improve water quality. There would be less sediment, nutrients, salts, and biological contaminants in the water. However, under this alternative, the improvement in water quality from public lands would be balanced with human dimension aspects. The cycle of apparent arroyo filling is expected to continue, which would support riparian restoration, in turn improving water quality by acting as a filter for many pollutants.

While water quality affected by public land uses might improve, it is not expected that any of the water-quality limited stream reaches identified by the state would improve enough to meet state standards solely from this action. The impacts on those water quality-limited stream reaches from non-public land uses and sources of pollutants would also have to be reduced to help meet state standards.

GRAZING ADMINISTRATION

Under the County Alternative, livestock use levels are expected to remain approximately at the seven-year average over the short-term, similar to the No Action Alternative. Adjustments in livestock numbers are expected to be upward on some allotments and downward on others. Adjustments are not expected to be large, either upward or downward because in general, current permits and leases are consistent with grazing capacities established through BLMs' rangeland monitoring program. Statewide, AUM adjustments are expected to balance out over the long- term. However,

fluctuation in use levels can be expected due to a variety of factor, such as weather conditions and the price of livestock. The long-term AUM projection statewide is expected to be around preference, which is 1,968,341 AUMs.

Implementing the guidelines in the County Alternative would be similar to BLM'S current management under the No Action Alternative. The livestock management practices may include rest or deferment, adjusting livestock numbers, changing seasons of use, modifying or developing range improvements, and vegetative land treatments. There would be segments of riparian habitat where current grazing practices would be adjusted to achieve riparian standards. In the short-term, functional condition on 13 riparian segments would be expected to improve. In the long- term, improvement in functional condition would be expected on 26 segments. Vegetation and litter in the riparian zone should respond and increase on the segments improved. The increase in canopy cover and litter should decrease the runoff and sediment, and improve the water quality.

Under this alternative, 287 permittees could be affected. On the majority of the larger allotments, modifications in use will have only minor impact on ranching operations, however, smaller operations may be affected more. Permittees most affected by the guidelines would be those with small one-pasture allotments where it may be necessary to defer grazing during critical periods of plant growth or regrowth. As a result, the permittee may be burdened financially by having to lease private pasture, improve private lands, add fencing to create an additional pasture, or partner with another allotment. There are also the additional costs associated with the handling of livestock for gathering and transporting.

WILD HORSES

Impacts on the Socorro wild horse herd from the implementation of the County Alternative would be similar to the No Action Alternative, with the exception that the RMP decision would be in conformance with the standard for rangeland health. Based on monitoring data, the area is in fair to good condition with a static trend and meets the standard. The existing resource condition would improve as in the No Action Alternative, as long as the AML of 50 is maintained and balanced with livestock grazing and other uses.

Impacts on the Farmington wild horse herd would be the same as under the No Action Alternative.

WILDLIFE

Implementing the County Alternative standards and guidelines would benefit wildlife in the short- and long-term in both upland and riparian areas by applying grazing guidelines. The improvement of riparian habitats currently functioning at risk with a downward trend would benefit wildlife, since these areas are the most diverse and productive areas.

The County Alternative would seek a balance between biological resources and human dimension concerns. The BLM would work cooperatively with the Department of Game and Fish to address wildlife population increases to assure no resource change or damage acquires and that existing uses of resources are protected.

While wildlife would be considered on the allotment level it does not provide for a review at the landscape level when developing LAPs.

36 - New Mexico and Arizona Plateaus and Mesas

Long-term benefits to big game would occur from the County Alternative when compared to the existing situation because it would improve upland habitat currently in poor condition or that is not meeting the standard due to grazing practices. However because this alternative utilizes less restrictive guidelines on livestock grazing than the Proposed Action it would not be as beneficial to upland habitat. Mule deer and elk are the primary big game species benefitting from these actions. There would be an increase in the deer population resulting from improving the quality and quantity of browse on upland sites, and creating new fawning areas.

Elk are currently increasing in numbers. Under the County Alternative the elk numbers and potential increases in elk would be balanced with human dimension needs. The BLM would work cooperatively with the NMDGF to address wildlife populations so that no resource damage would occur and grazing preference could be achieved.

The quality of habitat would improve (but to a lesser degree than the Proposed Action over the long-term for riparian-dependent big game species (turkey, deer, and furbearers). However, due to other limiting factors (drought) and hunting regulations, no measurable

increase in populations would be expected.

Allowing public access while controlling off-highway vehicle use and protecting wildlife habitat is a major concern for most field offices. Off-highway vehicle use could potentially increase the number of roads on public land, resulting in the degradation of big game habitat and increased wildlife harassment and displacement. Under the County Alternative and associated standards for erosion and wildlife habitat, road closures would continue.

Upland game and Nongame

Upland sites would improve over the long-term from land treatments and proper grazing practices on the acres that are not meeting the standards, resulting in a benefit for most upland wildlife species. The continued construction of water developments would favor upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Over the long-term, public land-resident fisheries habitat would be improved.

37 - San Juan River Valley Mesas and Plateaus

Long-term benefits to big game would occur from the County Alternative when compared to the existing situation because it would improve upland habitat currently in poor condition or not meeting the standards due to grazing practices. However, because this alternative utilizes less restrictive guidelines on livestock grazing than the Proposed Action it would not be as beneficial to upland habitat.

The quality of habitat would improve but to a lesser degree than the Proposed Action over the long-term for riparian-dependent big game species (turkey, deer, and furbearers). However, due to other limiting factors (drought) and hunting regulations, no increases in populations would be expected.

Allowing public access while controlling off-highway vehicle use and protecting wildlife habitat is a major concern for most field offices. Off-highway vehicle use could potentially increase the number of roads on public land, resulting in degradation of big game habitat and the increase of wildlife harassment and displacement. Under the County Alternative and associated standards for erosion and wildlife habitat, road closures would be continue.

Upland Game and Nongame

Upland sites would improve over the long-term on the acres that are not meeting the standard from land treatments and proper grazing practices, resulting in a benefit for most upland wildlife species. The continued construction of water developments would favor upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land resident fisheries habitat over the long-term would be improved.

39 - Arizona and New Mexico Mountains

Big Game

The BLM manages very little public land within this MLRA. Under the County Alternative, there are several areas where the standards and guidelines would improve wildlife habitat. Upland improvement projects, along with controlled grazing, would improve wildlife habitat for big game species over the long-term. The southwestern part of the state has a very active fire season. These natural events can be beneficial to resident elk herds by creating open meadow areas and increasing the amount of forage.

Upland Game and Nongame

Upland sites would improve over the long-term from land treatments and guidelines for grazing practices, resulting in a benefit for most upland and nongame wildlife species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public-land resident fisheries habitat would be improved over the long-term.

41 - Southeastern Arizona Basin and Range

A small percentage of this MLRA exists on BLM lands. Upland habitat would be improved under the County Alternative, thereby improving Coues' whitetail deer habitat in the southwestern corner of New Mexico.

42 - Southern Desertic Basins, Plains, and Mountains

Long-term benefits to big game would occur from the County Alternative by utilizing guidelines on livestock grazing, and improving upland habitat currently in poor condition or not meeting county standards due to grazing practices. Management of wildlife resources and objectives would be balanced with established RMP livestock forage allocations.

The County Alternative would help rectify historic land use practices that have caused problems such as the dewatering of streams and springs and altered or displaced big game species. Implementation of grazing guidelines, vegetative land treatments, increased water developments, road closures, and cooperative management efforts would have long-term benefits to big game habitat. Natural events (fire, flooding, etc.) that create a mosaic within the landscape and diversify the plant community would also benefit wildlife.

There would be a slight increase in the deer population from improving the quality and quantity of browse on upland sites, and creating new fawning areas. Management of wildlife resources and objectives would be balanced with established RMP livestock forage allocations. Pronghorn antelope populations are expected to increase over the long- term due to improved habitat conditions and transplants. Habitat conditions would improve over the long-term due to improved ecological conditions and movement patterns. Antelope transplants would be expected to continue in cooperation with the NMDGF and land owners.

Competition for food and space between mule deer and the Iranian ibex would continue under the County Alternative. Oryx would continue to move off the White Sands Missile Range and may displace mule deer and antelope by their size and aggressive behavioral patterns.

The quality of habitat would improve, but to a lesser degree than the Proposed Action over the long-term for riparian-dependent big game species (turkey, deer, and furbearers). However, due to other limiting factors (drought) and hunting regulations, no measurable increase in populations can be expected.

Allowing public access while controlling off-highway vehicle use and protecting wildlife habitat is a major concern for most field offices. Off-highway vehicle use can potentially increase the number of roads on public land, resulting in the degradation of big game habitat and the increase of wildlife harassment and displacement. Under the County Alternative and associated standards for erosion and wildlife habitat, road closures would continue to be implemented.

Upland Game and Nongame

Upland sites would gradually improve in the long- term from land treatments and grazing management practices, resulting in a benefit for scaled quail, Gambel's quail, and dove populations. The continued construction of water developments would favor upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public-land resident fisheries habitat over the long-term would be improved.

48 - Southern Rocky Mountains

A small percentage of this MLRA exists on BLM lands. Upland habitat would improve under the County Alternative, resulting in the improvement of some wildlife habitat within the MLRA.

51 - High Intermountain Valleys

Big Game

Under the County Alternative, management of wildlife resources and objectives would be balanced with established RMP livestock forage allocations. Long-term benefits to big game would occur from improving upland habitat currently in poor condition or not meeting the biotic standard due to grazing practices. Rocky Mountain elk would continue to be a key wildlife species within the Taos field office. Critical winter range would improve through the implementation of the county standards and guidelines.

Upland Game and Nongame

Upland sites would improve over the long-term from land treatments and proper grazing practices, resulting in a benefit for scaled quail, mourning dove, Merriam's turkey, numerous raptors, and migratory bird populations. The continued construction of water developments would favor upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public-land resident fisheries habitat over the long-term would be improved.

70 - Pecos/Canadian Plains and Valleys

Big Game

Long-term benefits would result from the County Alternative when compared to the existing situation because it would improve upland habitat currently in poor condition or not meeting the biotic standard due to grazing practices. However, because this alternative utilizes the less restrictive guidelines on livestock grazing than the Proposed Action it would not be as beneficial to upland habitat. The development and implementation of LAPs that identify management objectives consistent with the counties' standards and guidelines would allow vegetative land treatments and water developments to maintain or slightly improve wildlife habitat for big game species over the long-term. Natural events (fire, flooding, etc.) that create a mosaic within the landscape and diversify the plant community would also benefit wildlife. There would be a slight increase in the deer population from improving the quality and quantity of browse on upland sites, and creating new fawning areas. Pronghorn antelope populations are expected to increase over the long-term due to improved habitat conditions and transplants. Habitat conditions would improve over the long-term due to improved ecological conditions and movement patterns. Antelope transplants would be expected to continue in cooperation with the NMDGF and land owners.

Upland Game and Nongame

Upland sites would gradually improve over the long-term, from land treatments and grazing practices outlined in the County Alternative standards and guidelines would result in benefits to scaled quail and dove populations. The continued construction of water developments would favor upland game bird species.

The habitats and populations of candidate, sensitive, rare, New Mexico State listed, or other special status categories should be managed in accordance with state law. If special habitat management actions are required, the BLM would conduct a private sector impact assessment to balance the needs of the species with the impacts of the private sector.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public-land resident fisheries habitat over the long-term would be improved.

77 - Southern High Plains

Big Game

The BLM manages very little public land within the MLRA. Under the County Alternative, management would remain the same as current management (the No Action Alternative). RMP decisions would improve big game habitat by identifying goals and

objectives that allow vegetative land treatments and water developments.

Upland Game and Nongame

Upland sites would gradually improve over the long-term from land treatments and grazing practices identified in the county guidelines, improving the habitat for most upland and nongame wildlife species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land - resident fisheries habitat over the long-term would be improved.

SPECIAL STATUS SPECIES

Under the County Alternative, the focus of management and application of grazing guidelines would occur on public lands not meeting the biotic and upland standards, due to current grazing practices. These areas are contained primarily within the desert biome of MLRAs 36, 37 and 42 and the grassland biome of MLRA 70. There would be benefits to a portion of the 95 special status species occurring in the improved areas of the desert and grassland biomes managed under this alternative. Of concern when implementing livestock grazing practices is that areas of late-seral and PNC ecological status not decline due to redistribution of grazing patterns. These areas, in many cases, provide suitable habitat to support special status species with late-seral habitat requirements.

Also of concern in this alternative are the approximately 112 riparian segments that do not meet the proposed standards, due, at least in part, to livestock grazing. The greatest benefits to special status species resulting from this alternative would be the improvement of riparian conditions on 13 riparian segments in the short-term and 26 riparian segments in the long-term. Many of the 76 special status species associated with riparian areas and their aquatic systems would benefit from the improvement in riparian condition.

Areas past the threshold of improvement have lost the capability to recover toward PNC within the long-term of this analysis, even in the absence of grazing. In some cases, the PNC has shifted toward a different community. Even with chemical or mechanical manipulation, these areas may never reestablish a community like the lost native community. This is due to the change in ecosystem functionality occurring with the combined impacts of soil loss and vegetative community shifts associated with major disruptions caused by past land use practices and climate change. Examples of these are former desert grasslands which are now mesquite sand dunes and creosote bush/desert pavement communities of the Chihuahuan Desert in MLRA 42. Special status species that formerly used these areas would have differing abilities to recolonize these habitats as the relative condition improves with subsequent management. Some species, such as obligate grassland species like Baird's sparrow, may never be able to return to former habitats. Other areas, such as the shinnery oak/dunes areas of MLRAs 42 and 70 retain profound capability to return to previous grassland dominance, and the ability to support grassland species such as the lesser prairie chicken.

RECREATION

Under the County Alternative, recreational visitor use would continue to increase, especially in areas where urban visitors recreate. Developed recreation sites would particularly experience increased use. The recreational use levels on a statewide basis are not expected to be impacted by the standards and guidelines.

The County Alternative would provide for increased management of off-highway vehicle use and less road proliferation on approximately 4,600 acres in MLRA 36 and 7,300 acres in MLRA 42. Although these areas may be important to off-highway vehicle visitors that frequent the areas, on a statewide basis, they represent a small percent of the public land acreage.

Increased recreation supervision would occur on approximately 10,600 acres in MLRA 36 and 500 acres in MLRA 37 where recreational activities are keeping the area from meeting the upland standard. Additionally, recreation management would increase on 12,600 acres in MLRA 36 not meeting the biotic standard.

Considering that there may be overlap on many of the acres identified as having recreation conflicts with the standards, the additional restrictions would occur on less than 33,700 acres. This would not be a detectable impact on the recreational use of the public lands on a statewide basis.

It is expected that the present conflicts between livestock use and the developed facilities at the Wild

Rivers Recreation Area would be resolved over the next five years. As additional recreational sites are developed, livestock are expected to be excluded.

The BLM would be expected to resolve livestock grazing conflicts on riparian areas. In the long-term, an additional 26 riparian segments are expected to improve in condition, thereby improving the quality of the visit for recreationists on the public lands.

Not all of the acres are failing to meet the standards due to livestock grazing. However, many acres are expected to have an improved quality of visits for recreational visitors due to the improved native vegetation communities.

WILDERNESS

The County Alternative standards emphasize improving the natural systems in balance with the local community's social and economic needs.
Where sites not meeting the standard are included in WAs or WSAs, they would be expected to be a high priority for improved management. The review of WAs and WSAs to determine if they meet the standards should help determine what management changes are needed.

However, in WAs and WSAs the Wilderness Act and BLM management guidelines for these areas would limit some of the tools for management. For example, the range improvements that are normally applied to support improved livestock grazing management and land treatment techniques may not be permitted inWAs and WSAs. However, if theWAs and WSAs meet the standards, there would be no impact on wilderness values.

CULTURAL RESOURCES

Damage to or loss of archaeological sites in both upland and riparian areas due to erosion would be reduced, commensurate with reductions in erosion.

PALEONTOLOGY

Damage to or loss of paleontological sites in both upland and riparian areas due to erosion would be reduced, commensurate with reductions in erosion.

REALTY/LAND USE

Local areas are impacted by land and realty activities creating both short- and long-term surface disturbances by reducing vegetative cover and forage, increasing erosion or sediment load, degrading wildlife habitat, and increasing the potential for the introduction or spread of noxious weeds. Under the County Alternative, restoring the forage base to reduce impacts on the livestock industry would be an objective. If stipulations are approved, complied with and successful, they would mitigate impacts on a local basis by reducing soil erosion and sediment load, restoring ground cover, restoring diversity of plant species, protecting threatened and endangered or special status species and their habitats, minimizing the introduction or spread of noxious weeds, and protecting important cultural or historic resources. The impacts associated with land and realty surface-disturbing activities would continue under the County Alternative.

The implementation of standards and guidelines may require closer scrutiny of future surface-disturbing activities, such as requiring additional field checks in areas that have been identified as not meeting a standard. Projects in areas not meeting the standards would be monitored as needed to ensure compliance with stipulations, especially those dealing with reclamation and rehabilitation. In areas where reclamation efforts have been determined to be unsuccessful, coordination with the BLM, authorized users, and allottees may be necessary to determine the cause, and identify remedies for the failed reclamation and rehabilitation.

Additional work may be necessary to bring disturbed areas up to prescribed standards. This could increase companies' costs on individual projects if they are required to implement new or additional mitigation measures on future projects. Allottees may have to move livestock to other pastures or adjust AUMs or season of use if it is determined that grazing needs to be deferred in a disturbed area to allow ample time for plant regrowth. These changes would be determined on a case-by-case basis in coordination with the allottee. Although not required, if the county standards are adopted, emphasis would be placed on reseeding disturbed areas with native plant species. Currently, reseeding is required on disturbed areas, but standard seed mixtures established locally by BLM are used. Current seed mixtures are not limited to native species but include species that can provide plant cover, stabilize soils, provide desired forage for wildlife, are suitable to soil and climate conditions, and are readily available. The companies' cost of reclaiming a disturbed

area could increase if native seed sources are required. Costs would also be affected by the availability of seed.

If the County Alternative standards and guidelines go into effect, it is anticipated that the BLM would receive increased applications for land exchanges or sales. However, due to the staffing and budget demands and the length of time it takes to complete land ownership adjustments, it is not expected that the number of exchanges or sales completed each year would greatly increase from the number currently processed. Any public lands disposed of through exchange or sale would no longer be managed by the BLM and therefore would not be subject to the standards and guidelines. Work is expected to continue on acquiring easements or upgrading or closing existing roads as identified through the land use planning process, (i.e., RMPs).

MINERAL RESOURCES

Under the County Alternative, impacts on mineral resources would be the same as the for the Proposed.

NATIVE AMERICAN CULTURAL ISSUES

Native American concerns would continue to be protected under the law as outlined in Chapter 3.

ECONOMIC

The analysis in this section refers to the state of New Mexico in terms of economic impact; however, the impacts will be most imposing upon counties with greater than 10% BLM land ownership. Counties with greater than 10% BLM land include 17 counties (Table 3-10), this is over one half of the counties within New Mexico. The primary endogenous sectors associated with BLM lands include oil, gas, and agriculture. Of these sectors, agriculture has proven through time to be the most stable (Figure 4-1). This sector is comprised primarily of individuals and families with sufficient diversity to have enterprises broad enough to capture a favorable market price for one or several agriculture commodities. Whereas, oil and gas sectors are, on the majority, large corporations concentrated in a single commodity. Both sectors are dependent upon a natural resource, but the families in agriculture have an investment that forces them to ride out the price cycles, rather than idling livestock, equipment, and land during the trough portions of the price cycle. Therefore, economic impacts from implementing guidelines associated with grazing standards on BLM land, are essentially imposed upon the stable portion of New Mexico's rural counties, which comprise more than half of the state's counties.

The initial (first year) total economic impacts to the state of New Mexico economy were negative regardless of the alternative, assumptions, and options. The major difference between the assumption that all ranches stayed in business and 22% of them converted to real estate was the loss of 22% of the AUMs from the economy. Also, the assumption that 20% of the AUMs would be removed from allotments, that did not meet the standard, had a greater negative impact than the no AUM reduction option, because of the loss of the value of production from the reduced AUM's in addition to the operational adjustments the allottee was forced to make. In the case where the BLM provided 100% and 50% of the funding for the improvements the economic impacts were identical, because the BLM provide funding for the materials in both cases. Under the option of the rancher funding 100% of the improvements necessary to meet the standards; title to structural range improvements authorized by a Cooperative Agreement for Range Improvements would be shared by the United States and cooperators in proportion to the actual amount of there respective contributions to the initial construction to provide the rancher the necessary incentive to install the specific improvements. Title to no structural range improvement(s) authorized by Cooperative Agreement would be in the United States.

Under County Alternative and the scenario that all ranches stayed in business, the least economic impact was when there were no AUM reductions. The initial loss of economic activity (Table 4-9, Table 4-10)

Table 4-9: County Alternative - Economic Impacts (cumulative)				
All range livestock- no ranches converting to real estate				
Year 1	**County No BLM AUM Reduction**		**County 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(1,666,000)	(1,660,000)	(6,777,000)	(6,772,000)
Personal Income	(326,000)	(476,000)	(1,139,000)	(1,303,000)
Employment	(12.40)	(10.33)	(62.25)	(59.92)
Year 14	**County No BLM AUM Reduction**		**County 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(3,170,000)	(3,114,000)	(7,047,000)	(6,990,000)
Personal Income	(1,401,000)	(2,897,000)	(2,389,000)	(4,026,000)
Employment	7.00	9.07	17.24	19.64
Year 21	**County No BLM AUM Reduction**		**County 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	25,272,000	25,328,000	60,841,000	60,898,000
Personal Income	2,599,000	1,104,000	7,558,000	5,921,000
Employment	43.62	45.69	53.86	56.26

Table 4-10: County Alternative - Economic Impacts (cumulative)				
All range livestock ranches w/22% converting to real estate				
Year 1	**County No BLM AUM Reduction**		**County 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(8,578,000)	(8,574,000)	(12,580,000)	(12,605,000)
Personal Income	(1,369,000)	(1,804,000)	(2,010,000)	(2,147,000)
Employment	(80.47)	(78.80)	(119.64)	(118.22)
Year 14	**County No BLM AUM Reduction**		**County 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(63,765,000)	(63,721,000)	(81,403,000)	(81,655,000)
Personal Income	(10,095,000)	(14,442,000)	(13,194,000)	(14,559,000)
Employment	(47.91)	(46.24)	(58.56)	(57.09)
Year 21	**County No BLM AUM Reduction**		**County 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(16,942,000)	(16,899,000)	(18,279,000)	(18,532,000)
Personal Income	(2,376,000)	(6,772,000)	(3,106,000)	(4,470,000)
Employment	17.35	19.02	6.70	8.17

was almost $1.7 million of which approximately a $476,000 loss in personal income. A total loss of 10.3 FTEs was estimated under this alternative. As compared to the $12.6 million loss when 20% of AUMs were reduced and 22% of the ranches converted to real estate. These impacts were for a single year and were aggregated over a seven year period to quantify the cumulative impacts to year seven.

Year 10 cumulative impacts included an authorization of additional AUMs, which allowed the ranch unit to restock any AUMs that were reduced plus 1/3 of the AUMs toward preference. The analysis revealed that it required a minimum of 10 years after the initial reductions to yield a positive return in employment when all of the ranches stayed in business. The minimum impacts after 10 years occurred when none of the ranches converted to real estate, no AUM reductions, and the ranch financed the improvements. The greatest economic loss occurred when there was a 20% reduction in AUMs and BLM financing of improvements under the scenario of 22% of ranches not meeting standard and converting to real estate.

After the tenth year of implementation of the guidelines, the negative impacts due to implementation of improvements lessened to only maintenance and repairs under this alternative. The year to year economic impacts changed from all negative to positive impacts in FTEs, but personal income continued to decline, because the range livestock sector expenditures were still larger
than the baseline due to repairs and maintenance which more than offset the increase to the wholesale sector.

In year 14 under the County Alternative, it was assumed another 1/3 of preference AUMs were authorized on the BLM permits/leases that had previously not met the standard. Minimum impacts (Table 4-9) occurred when there were no reduction of AUMs and the rancher funded 100% of the improvements. These impacts included: losses of $3.1 million in economic activity, losses of $2.9 million in personal income, and a gain of 9 FTEs. The greatest economic loss occurred when 22% of the ranches converted to real estate and there was a 20% reduction of AUMs and the Rancher funded the cost of improvements (Table 4-10). These impacts included: a loss of almost $82 million in economic activity, a loss of $14.6 million in personal income, and a loss of 57 FTEs. Year 21 was the final year of analysis; it was assumed that the allotment should have achieved an ecological condition surpassing the standards and the allotment would be operated with full preference AUMs. The economic impacts varied widely dependant upon the assumptions, and options analyzed. It was recognized that the actual impacts would be in the range between the minimum and maximum economic impacts estimated, since there would be a wide variety of allotment conditions, improvement construction, financing of the improvements, and rancher reactions. Therefore, it was believed that the economic impacts would actually be in a range for this alternative (Tables 4-9 and 4-10).

Revised Economic Analysis

This analysis recalculated the economic impacts after the methodology modifications. It includes the allotments meeting the standard moving towards preference along with the allotments that did not meet the standard. This assumes that all BLM allotments within the State of New Mexico are grazing at the historical preference levels by year 21.

Under this modified methodology the initial (year 1) and Year 7 impacts are identical to the impacts before the modification. However, after year 7 the negative impacts are less than the initial analysis due to the additional allotments moving toward preference.

In year 14 under the County Alternative, it was assumed another 1/3 of preference AUMs were authorized on all of the BLM permits/leases. Minimum impacts (Table 4-11) occurred when there were no reduction of AUMs and the rancher funded 100% of the improvements. These impacts included: gains of $30 million in economic activity, gains of $2.3 million in personal income, and a gain of 53 FTEs. The greatest economic loss occurred when 22% of the ranches converted to real estate and there was a 20% reduction of AUMs and the Rancher funded the cost of improvements (Table 4-12). These impacts included: a loss of almost $71 million in economic activity, a loss of $12.6 million in personal income, and a loss of 8 FTEs.

Year 21 was the final year of analysis; it was assumed that the allotment should have achieved an ecological condition surpassing the standards and the allotment would be operated with full preference AUMs. The economic impacts varied widely dependant upon the assumptions, and options analyzed. It was recognized

Table 4-11: County Alternative - Economic Impacts (cumulative)		
All range livestock - no ranches converting to real estate		
Year 1 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(1,666,000) (1,660,000) (326,000) (476,000) (12) (10)	(6,777,000) (6,772,000) (1,139,000) (1,303,000) (62) (60)
Year 7 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(11,661,000) (11,622,000) (2,281,000) (3,328,000) (12) (10)	(47,441,000) (47,401,000) (7,976,000) (9,122,000) (62) (60)
Year 10 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(11,093,000) (11,037,000) (2,401,000) (3,897,000) 4 6	(42,085,685.95) (42,028,590.05) (7,441,655.82) (9,078,683.52) 12 15
Year 14 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	30,327,000 30,383,000 3,824,000 2,329,000 51 53	(20,510,000) (20,453,000) (4,381,000) (6,018,000) 68 71
Year 21 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	92,265,000 92,320,000 13,050,000 11,555,000 87 89	41,921,000 41,970,000 4,722,000 3,085,000 104 106

Table 4-12: County Alternative - Economic Impacts (cumulative)		
All range livestock ranches w/22% converting to real estate		
Year 1 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(8,578,000) (8,574,000) (1,369,000) (1,804,000) (80) (78)	(12,580,000) (12,605,000) (2,010,000) (2,147,0000) (120) (118)
Year 7 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(60,049,000) (60,018,000) (9,584,000) (12,626,000) (80) (79)	(88,061,000) (88,238,000) (14,071,000) (15,026,000) (120) (118)
Year 10 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(76,514,000) (76,471,000) (12,102,000) (16,448,000) (50) (49)	(107,036,953.21) (107,289,621.51) (17,065,271.97) (18,429,552.97) (62) (61)
Year 14 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(30,268,000) (30,225,000) (4,870,000) (9,216,000) (4) (3)	(70,286,000) (70,538,000) (11,280,000) (12,644,000) (9) (8)
Year 21 Capital Outlay	County, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	County, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	50,050,000 50,094,000 8,075,000 3,729,000 58 60	10,033,000 9,780,000 1,655,000 301,000 53 55

that the actual impacts would be in the range between the minimum and maximum economic impacts estimated, since there would be a wide variety of allotment conditions, improvement construction, financing of the improvements, and rancher reactions. Therefore, it was believed that the economic impacts would actually be in a range for this alternative (Tables 4-11 and 4-12). An important assumption in the analysis was that allotments not meeting the standard would be operated at preference AUMs at the end of 21 years, without this assumption all impacts would be negative.

Under the County Alternative economic activity was estimated between a gain of almost $9.8 million and a gain of $92.3 million. Personal income had a range of between a gain of $1.7 million and a gain of $13 million. Jobs had an expected range between a gain of almost 55 and 106 FTEs.

HUMAN DIMENSION

Financial, Social and Cultural Impact Analyses

In the County Alternative the Human Dimension is incorporated into each standard and it also has a Human Dimension Standard.

Financial Impacts

Under the County Alternative, the ranchers face the same effects discussed in the RAC, though approximately only two thirds the number of ranches would be affected, and those would not be as adversely affected.

Based on the analysis of the four New Mexico regions, the ranches not meeting the standard that have a heavy dependency on public lands would be most affected by the BLM management changes. These ranchers may not be able to sustain their ranch operations into the next year. The affected ranchers would be less able to meet their overhead expenses, especially given their increased costs of improvements and maintenance.

Faced with short-term financial loss the rancher's options to reduce substantial financial risk are:

- find additional off ranch income
- find private land to rent for livestock, if available
- large ranches could sell off their assets
- acquire other government lands to use, if available
- reduce size of operations
- sell their land and water rights (liquidate)

Financial Impacts by Region: The remainder of this section discusses financial impacts by region, summary financial threshold tables and summary. The financial threshold analysis is based on the 10-year-average (See Appendix D).

Central Mountain Region: All affected ranches in the four typical ranch size categories not meeting the standard would continue to meet the Financial Threshold for Production, but at a reduced level (losses of gross margin of extra-small-69%, small-8%, medium-23%, and large-8.3%) (Table 4-13). The large ranch would still be able to meet the Economic Threshold for Risk, although with a smaller residual profit. The medium ranch could meet this threshold if resources are available to increase production (Table 4-14). The affected medium ranches not meeting the standard could continue financial activity associated with the BLM permit provided the AUMs are not reduced by 20 percent, and/or the rancher is not required to bear the costs of improvements. The affected large ranches not meeting the standard could continue financial activity associated with the BLM permits even if a 20 percent reduction is imposed, and if the ranchers are required to pay the costs of improvements.

Northwest Region: All affected ranches in the four typical ranch size categories not meeting the standard would continue to meet the Financial Threshold for Production, but at a reduced level (losses of gross margin: extra-small-69%; small-9%; medium-23%; and extra-large-8.3%) (Table 4-13). Only the extra-large ranches not meeting the standard would be able to meet the Financial Threshold for Risk if resources are available to increase production (Table 4-14). Financial activity on the affected BLM permits of extra-small and medium ranches not meeting the standard would continue provided the rancher is not required to bear the costs of improvements, and/or suffer a 20 percent reduction in AUMs.

Southeast Region: All affected ranches in the five typical ranch size categories not meeting the standard would continue to meet the Financial Threshold for Production, but at a reduced level (losses of gross margin: extra-small-53%; small-3%; medium-19%;

Synopsis Table 4-13 County Alternative Affected ranches not meeting the standard, Financial Threshold for Production				
	Central Mountain Region	**Northwest Region**	**Southeast Region**	**Southwest Region**
Extra-small ranches	Meeting	Meeting	Meeting	Meeting
Small ranches	Meeting	Meeting	Meeting	Meeting
Medium ranches	Meeting	Meeting	Meeting	Meeting
Large ranches	Meeting	--n/a--	Meeting	Meeting
Extra-large ranches	--n/a--	Meeting	Meeting	Meeting

Note: The information in the above table assumes: 1) there will be no reduction in BLM AUMs, and 2) the rancher is not required to bear the cost of improvements.

Source: Southwest Center for Resource Analysis Report - prepared by Rita D. Harbison, M.B.A. -WNMU.

Synopsis Table 4-14 County Alternative Affected ranches not meeting the standard, Financial Threshold for Risk				
	Central Mountain Region	**Northwest Region**	**Southeast Region**	**Southwest Region**
Extra-small ranches	Not Possible	Not Possible	Not Possible	Meeting
Small ranches	Not Possible	Not Possible	Not Possible	Not Possible
Medium ranches	Not Possible	Not Possible	Meeting	Meeting
Large ranches	Meeting	--n/a--	Meeting	Meeting
Extra-large ranches	--n/a--	Meeting	Meeting	Meeting

Note: The information in the above table assumes: 1) there will be no reduction in BLM AUMs, and 2) the rancher is not required to bear the cost of improvements.

Source: Southwest Center for Resource Analysis Report - prepared by Rita D. Harbison, M.B.A. -WNMU.

large-19%; and extra-large-17%) (Table 4-13). Three of the sizes (medium, large, and extra-large) not meeting the standard would also be able to meet the Financial Threshold for Risk (Table 4-14). Financial activity on the affected BLM permits of the remaining ranches not meeting the standard (small, medium, large, and extra-large) would continue, even if the rancher is required to pay for the costs of improvements and the BLM permits are reduced by 20 percent.

Southwest Region: All affected ranches in the five typical ranch size categories not meeting the standard would continue to meet the Financial Threshold for Production, but at a reduced level (losses of gross margin: extra-small-37%; small-2.5%; medium-43%; large-24%; and extra-large-0%) (Table 4-13). Four of the ranch sizes not meeting the standard (extra-small, medium, large, and extra-large) would be able to meet the Financial Threshold for Risk if resources are available to increase production (Table 4-14). The remaining four affected ranch sizes not meeting the standard (small, medium, large, and extra-large) would continue financial activity on the affected BLM permits even if a 20 percent reduction in BLM AUMs is added or if the rancher is required to bear the costs of improvements.

Financial Summary: The County Alternative has a potential negative effect on the existing condition of current ranch operations. Extra small, small and medium size classes of public land ranches have the potential to be put at financial risk. While an objective of the County Alternative is to stabilize the industry and related local tax base, a potential exists for a ranch to be financially burdened, especially in the short-term. In the short-term, this alternative would be less adverse financially to the affected ranchers than either the RAC or Fallback
Alternatives. In addition to the financial impacts to the individual rancher, local governments and agencies would potentially lose taxes and fees from reduced number of livestock, private property assessments and improvements.

Social Impacts

The foundation for determination of the affects to social indicators can best be evaluated by looking at economic and financial information. Quantification of social impacts is not possible due to lack of being able to identify specific lands not meeting the standards. Thus, the level of impact at the individual, family and community level can not be determined at this time. Based on economic and financial data available, only the direction of impact can be estimated. Table 4-15 shows the expected direction for social effect indicators on rural communities with dependence on public land grazing.

Based on these estimates, this alternative could have short-term adverse impacts on affected ranches as discussed in the RAC Alternative, except that the degree and intensity of impacts would be less than the RAC Alternative.

As livestock grazing or other activities are adjusted, the cumulative effects will increase. Each community has a threshold for the amount of change it can absorb and still function. The threshold for each community will depend upon the individual community's characteristics.

Family Stability

Family stability is the ability of the family to function in harmony without family strife, such as domestic violence and divorce. One of the greatest impacts to family stability is the loss of livelihood, according to empirical social research (Blehar, 1979 and Fagin and Little, 1984). With the loss of employment, the breadwinner is relegated from a position of dignity and worth to low self esteem (Borrero, 1980).

For those ranches that have lands that do not meet the standards and have to adjust their grazing operations to be in concert with the grazing guidelines, the additional costs of range improvement construction, rotating livestock or finding additional pasture would result in additional costs and less return to support the family, in the short-term. Depending on the individual family's circumstances, impacts to ranch families could be far reaching. A potential exists for a ranch family to be put at financial risk and some ranchers might go out of business. This could put the family through a threshold where divorce, crime, suicide, alcohol and family violence break down family stability. Where the family has more stress than it can endure, the family might leave the rural community or perhaps reduce its role in the community.

Table 4-15 Direction of Social Indicators based on County Alternative			
Social Indicators	**Short-term**	**Long-term**	**Measurement**
Family Stability	Downward	Upward	Personal Income
Rural Community Stability	Downward	Upward	Employment and Census
Local Government Stability	Downward	Upward	County Budget
Agricultural Land Use	Downward	Upward	Total Acres

A reasonable projection of family stability is personal income (Branch, et al., 1982). Based on the economic analysis, the statewide personal income generated from public land livestock grazing is expected to initially drop, but then increase under this alternative. For those families that are resilient enough to make it through the short-term, they would have improved financial resources. The family stability would be expected to improve in the long-term.

Rural Community Stability

Rural community stability is the capacity of the rural community to absorb the rate and magnitude of change. Employment provides a measure of the impact on rural community stability. The exact impacts on employment can not be determined at this time. According to the Economic Impact Analysis discussed in the previous section the potential short-term employment loss from the County Alternative is 120 jobs. These jobs are hired help; most of these ranches are family run operations with the family contributing most of the labor. Over 250 ranches could be put at financial risk under the County Alternative. Based on typical ranch characteristics, if the average ranch family size is 3 members, and an average 2.5 family members work on the ranch (Fowler 1993); multiply that times 250 ranches for a total of 625 family jobs that would be potentially adversely affected. Combining the family jobs with the wage jobs, 745 jobs could potentially be affected.

Small isolated communities are more vulnerable due to weaker links to centers of political and economic influence and a less flexible job base. Because of this, the smaller communities are more likely to experience unemployment, increased poverty, and social disruption (Range Reform '94). Social mobility, eroding the agrarian way of life, and out-migration of moderate to low income and/or ethnic minority groups and communities could be accelerated. If employment losses are concentrated in a few communities and if other factors contribute to low community resistance, the result may be a less stable community. However, if employment impacts are dispersed statewide, the destabilization to the rural communities would be less. Rural community stability could improve in the long-term, through increased employment.

Local Government Stability

Local government stability is the ability to provide services such as education, medical care, emergency services, environmental services, law enforcement, fire protection, water, roads, and waste services. In rural counties, these services are often dependent upon land value, agricultural production and the taxes they generate. When these services can no longer be provided due to the loss of revenues, adjustments in the quality or quantity of services must be made. This may result in a community passing through a threshold for local government services, as typically schools are consolidated with larger school systems when budgets are not adequate. When schools are consolidated, their ability to foster community cohesiveness declines (Jobes 1986).

A reasonable measure of local government stability is employment, agricultural products and agricultural land. They provide a tax base for the county budget.

Statewide, employment generated from public land livestock grazing is projected to drop in the short-term. The degree of impact to local government would depend on whether the effects are concentrated or dispersed among communities. The local government stability could be expected to improve in the long-term with an improved tax base.

Agricultural Land Use

Agricultural land use is the total acres of land devoted to producing crops and raising livestock. Under this alternative, it is expected that at least some of the ranchers could find the short-term impacts to their livestock grazing operations too great and they would select the option to go out of business rather than continue livestock grazing operations. Thus, a reduction in acreage of agricultural land use could be expected in the short-term. In the long-term, the ranches could be sold to new livestock operators and as land conditions improve, the land use devoted to agriculture could increase.

Cultural Impacts

If changes impact the traditions, heritage, attitudes, beliefs and values, the culture is affected. For this analysis, cultural impacts can not be quantified and are best evaluated by looking at feedback information. The following two methods are utilized in this analysis:

public polls
public comments

In a poll conducted by the University of New Mexico's Public Policy Center, a substantial majority (over 75%) of New Mexico citizens believe it to be moderately to extremely important to preserve ranching as a way of life in the State. However, the same poll identified that 49 percent view environmental preservation as the top priority and 22 percent view recreational use as the top priority. Thus, approximately 71 percent would support a program that provides for environmental enhancement or recreational opportunities.

Rural Values, Attitudes and Beliefs

Most of the public land ranches in New Mexico are family run businesses, originating from three land based cultures (Hispanic, Native American and Anglo-Celtic) discussed in Chapter Three. Where reduced revenues force individuals from their traditional manner of living, the ranch operation is impacted adversely. This affects the extended families, which in turn, affects the ranching based cultures. The sense of place with its association with a sense of well-being and community stability would be reduced for the ranching communities if adverse impacts are concentrated.

The rural communities of the arid Southwest are made up of people who share beliefs and values which are, if not embodied by, closely linked to the culture of ranching (Smith, 1997). People who ranch rely on their interaction with the public lands for the centering and stabilizing of the lifeway. As the individuals who ranch are displaced by increased economic pressures and/or the demand for changing uses, the values of the communities as a whole begin to fade in the descent toward a more homogenous national monoculture. This can be particularly important for Native American and Hispanic ranchers from Northern New Mexico where livestock operations tend to be vulnerable due to their small size. Additionally, the Anglo-Celtic culture cannot exist without grazing cattle in the highlands (McWhiney, 1988).

Of the commentors on the Draft RMPA/EIS reflecting rural or agricultural values, approximately 72 percent supported the County Alternative. They expressed that it is important to have the Human Dimension Standard. They supported the County Alternative because of its greater emphasis on the Human Dimension and because they believe fewer ranches would be affected.

Environmental Values, Attitudes and Beliefs

The poll conducted by the University of New Mexico's Public Policy Center found that 49 percent of New Mexico citizens believe environmental preservation to be the top priority. Based on their commitment that environmental preservation is their number one priority, it is reasonable to group these individuals into a culture.

Of the commentors on the Draft RMPA/EIS reflecting environmental values are important, approximately 47 percent supported the Fallback Alternative. They expressed that the County Alternative was not consistent with the regulations and was too focused on the short-term economic needs of ranchers.

Conclusion

Of all the alternatives, the rural interests supported the County Alternative the most, while the environmental interests opposed the County Alternative the most. Table 4-16 shows the expected direction for cultural indicators.

Based on the University of New Mexico's Public Policy Center poll this alternative would please the over 75 percent of New Mexico citizens who view preservation of ranching as a way of life to be moderately to extremely important. However, it may be a concern to the 71 percent of New Mexico citizens who view environmental preservation or recreation as the top priority.

Table 4-16
Consistency with Cultural Indicators - County Alternative

Cultural Indicators	Short-term/Long-term Direction	Measurement
Rural Values, Attitudes and Beliefs	High	Comments
Environmental Values, Attitudes and Beliefs	Low	Comments

FALLBACK ALTERNATIVE

VEGETATION

Upland Vegetation

Under the Fallback Alternative, the focus of management and the application of grazing guidelines within this alternative would occur on the public lands that do not meet the standard. Changes in grazing management would include water development, fences, and vegetative treatments and possible deferment on areas, not meeting the standard. In the short-term, little improvement would be expected. However, in the long-term, measurable improvement in vegetative cover and composition would be expected due to grazing management practices. Additionally, vegetation would be enhanced through the use of mechanical and chemical manipulations in both the short- and long-term. These improvements would occur mostly within the desert and woodland biomes in MLRAs 36, 42, and 70.

Riparian Vegetation

Under the Fallback Alternative, riparian communities and vegetation on 154 riparian segments classified as nonfunctional or functional at risk with a downward trend or where the trend is not apparent (stable), would not meet the standards. These areas are affected, at least in part, by grazing activities. Management efforts in the short-term are projected to improve 20 segments. Of this total, 10 segments would improve to proper functioning condition. In the long-term, 29 areas would improve to proper functioning condition and 58 other segments would be improved. Improvement of many areas would be limited by the fragmented distribution of BLM riparian areas and the lack of coordinated watershed management efforts.

SOILS

With intense management under the Fallback Alternative, there would be a continued slow improvement over the long-term in upland soil conditions where soils are more productive, such as Mollisols, Alfisols, and moderately fine textured Entisols. On poorer sites, and with less intensive management, there would be little or no change over the long-term in the health of the upland soils except in response to drought or additional moisture conditions. No changes are expected for either case over the short-term. This alternative would result in the most overall improvement of all the alternatives due to implementation of grazing management guidelines. Over half of the uplands not meeting the standard for this alternative are in MLRA 42; however, the soil response to management in this MLRA would be slow. More profound response would come from the better sites such as those in MLRAs 36 (northern part); 39, 41, 48A, 70 (northern part); and the gently sloping uplands of MLRA 77.

WATER

In the long-term, continued implementation of BMPs to reduce NPS pollution and riparian area management would promote reductions in erosion and sediment production from public lands and slowly improve water quality. There would be less sediment, nutrients, salts, and biological contaminants in the water. The cycle of apparent arroyo filling is expected to continue which would support riparian restoration, in turn improving water quality by acting as a filter for many pollutants.

While water quality affected by public land uses might improve, it is not expected that any of the water quality-limited stream reaches identified by the state would improve enough to meet state standards solely from this alternative. The impacts on those water quality-limited stream reaches from non-public land uses and sources of pollutants would also have to be reduced to help meet state standards.

GRAZING ADMINISTRATION

Under the Fallback Alternative, livestock use levels are expected to remain approximately at the seven- year average over the short-term, similar to the No Action Alternative. Adjustments in livestock numbers are expected to be upward on some allotments and downward on others. Adjustments are not expected to be large, either upward or downward because in general, current permits and leases are consistent with grazing capacities established through BLM's rangeland monitoring program. Statewide AUM adjustments are expected to balance out over the long-term. However, fluctuation in use levels can be expected due to a variety of factors such as weather conditions and the price of livestock. The long-term AUM projection is expected to be around preference

which is 1,968,341 AUMs.

Implementing the guidelines for the Fallback Alternative would be similar to what BLM is doing now in the No Action Alternative. The livestock management practices may include rest or deferment, adjusting livestock numbers, changing season of use, modifying or developing range improvements and vegetative land treatments. There would be segments of riparian habitat where current grazing practices would be adjusted to achieve riparian standards. In the short-term, functional condition on 20 riparian segments would be expected to improve. In the long-term, improvement in functional condition would be expected on 58 segments. Vegetation and litter in the riparian zone should respond and increase on the segments improved. The increase in canopy cover and litter should decrease the runoff and sediment, and improve the water quality.

Under this alternative 480 permittees could be affected. On the majority of the allotments which are larger, modifications in use will have only minor impact to their ranching operation; however, smaller operations may be affected more. Permittees most affected by the guidelines would be those with small one-pasture allotments where there is continuous, season-long grazing. Continuous, season long grazing is allowed to occur only when it has been demonstrated to be consistent with achieving a healthy, properly functioning ecosystem. Season-long grazing is not inherently inappropriate, if grazing intensity and livestock distribution are managed properly (CAST, 1996) It however may be necessary to defer grazing during periods of plant growth and regrowth. As a result the permittee may be burdened financially by having to lease private pasture, improve the private lands, fence to create an additional pasture or partner with another allotment. There is also the additional costs associated with the handling of livestock for gathering and transporting.

WILD HORSES

The impacts to the Socorro wild horse herd from the implementation of the Fallback Alternative would be similar to the No Action Alternative, with the exception that the RMP decision would be in conformance with the fallback standard for rangeland health. Based on the monitoring data, the area is in fair to good condition with a static trend and currently meets the standard. The existing resource condition would improve as in the No Action Alternative as long as the AML of 50 is maintained and balanced with livestock grazing and other uses.

The impacts to the Farmington wild horse herd would be similar to the No Action Alternative.

WILDLIFE

The standards and guidelines under the Fallback Alternative are the most restrictive, and would focus management activities on more acres of wildlife habitat protection than the other alternatives.

Implementing the national fallback standards and guidelines would benefit wildlife in the short- and long-term in both upland and riparian areas. The improvement of riparian habitats currently functioning at risk would benefit wildlife, since these areas are the most diverse and productive areas. Over the long-term, the Fallback Alternative would help ensure that site-specific, as well as landscape-level habitat needs are considered when developing LAPs. The Fallback Alternative would allow for a slight increase in actual AUMs over the long-term, but would consider and protect critical wildlife resources. The use of livestock as a management tool would be allowed to restore and maintain sustainable habitats, increase biological diversity and vegetative productivity, and promote properly functioning uplands and riparian areas.

By managing rangeland to restore and maintain natural ecosystems, the Fallback Alternative would benefit wildlife in the long-term by increasing or improving the amount and quality of habitat. With restored naturally-functioning ecosystems comes an increase in biological diversity. Greater biological diversity would allow more opportunities for most species to meet basic life requirements.

36 - New Mexico and Arizona Plateaus and Mesas

Big Game

Long-term benefits to big game would occur from implementing the Fallback Alternative, and improving upland habitat currently in poor condition or not meeting the standard due to grazing practices. Mule deer and elk would be the primary big game species benefitting from these actions. There would be an increase in the deer population through improving the

quality and quantity of browse on upland sites, and creating new fawning areas. Elk are currently increasing in numbers; however, they would be controlled by the NMDGF.

The quality of habitat would improve over the long-term for riparian-dependent big game species (turkey, deer, and furbearers) due to the strong emphasis on riparian management. However, due to other limiting factors (drought) and hunting regulations no measurable increase in populations would be expected.

Allowing public access while controlling off-highway vehicle use and protecting wildlife habitat is a major concern for most field offices. Off-highway vehicle use can potentially increase the number of roads on public land, resulting in degradation of big game habitat and increased wildlife harassment and displacement. Under this alternative and associated standards for erosion and wildlife habitat, road closures would continue.

Upland Game and Nongame

Upland sites would improve very rapidly over the short- and long-term under the Fallback Alternative, benefitting most upland wildlife species. The continued construction of water developments where needed would favor upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

37 - San Juan River Valley Mesas and Plateaus

Long-term benefits to big game would occur from the Fallback Alternative by utilizing the most restrictive guidelines on livestock grazing, and improving upland habitat currently in poor condition or not meeting the standard due to grazing practices.

The quality of habitat would improve over the long-term for riparian-dependent big game species (turkey, deer, and furbearers) due to the strong emphasis on riparian management. However, due to other limiting factors (drought) and hunting regulations no measurable increase in populations would be expected.

Allowing public access while controlling off-highway vehicle use and protecting wildlife habitat is a major concern for most field offices. Off-highway vehicle use can potentially increase the number of roads on public land, resulting in degradation of big game habitat and increased wildlife harassment and displacement. Under this alternative and associated standards for erosion and wildlife habitat, road closures would continue.

Upland Game and Nongame

Upland sites would improve over the long-term, due to land treatments and proper grazing practices, resulting in benefits for most upland wildlife species. The continued construction of water developments would favor upland game bird species.

Special management for raptor nesting areas would continue. Small changes in the overall landscape while protecting nests sites would benefit raptors by increasing their prey base.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

39 - Arizona and New Mexico Mountains

Big Game

The BLM manages very little public land within this MLRA. Under this alternative, there are several areas where the standards and guidelines would improve wildlife habitat. Upland improvement projects along with controlled grazing would improve wildlife habitat for big game species over the long-term. The Southwestern part of the state has a very active fire season. These natural events can be beneficial to resident elk herds by creating open meadow areas and increasing the amount of forage.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl

would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

41 - Southeastern Arizona Basin and Range

A small percentage of this MLRA exists on BLM lands. Upland habitat would be improved under this alternative, thereby improving Coues' whitetail deer habitat in the southwestern corner of New Mexico.

42 - Southern Desertic Basins, Plains, and Mountains

Long-term benefits to big game would occur under the Fallback Alternative by utilizing the most restrictive guidelines for livestock grazing, and improving upland habitat currently in poor condition or not meeting the standard due to grazing practices.

Big Game

This alternative would rectify historic land use practices that have caused problems such as the dewatering of streams and springs, and displacement of big game species. Implementation of proper grazing practices, vegetative land treatments, increased water developments, and cooperative management efforts would have long- term benefits to big game habitat. Natural events (fire, flooding, etc.) that create a mosaic within the landscape and diversify the plant community would also benefit wildlife. There would be a slight increase in the deer population from improving the quality and quantity of browse on upland sites, and creating new fawning areas. Pronghorn antelope populations are expected to increase over the long-term due to improved habitat conditions and transplants. Habitat conditions would improve over the long-term due to improved ecological conditions and movement patterns. Antelope transplants would be expected to continue in cooperation with the NMDGF and land owners.

Competition for food and space between mule deer and the Iranian ibex would continue under this alternative. Oryx would continue to move off the White Sands Missile Range and may potentially displace mule deer and antelope because of their size and aggressive behavioral patterns.

The quality of habitat would improve over the long-term for riparian-dependent big game species (turkey, deer, and furbearers) due to the strong emphasis on riparian management. However, due to the small percentage of riparian habitat located on public land and other limiting factors affecting big game populations, no large change in populations would be expected.

Upland Game and Nongame

Upland sites would improve in the short-term and fully recover in the long-term, from land treatments and proper grazing practices, benefitting scaled quails, and Gambel's quail, and dove populations. The continued construction of water developments where needed would favor upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat would be improved over the long-term.

48 - Southern Rocky Mountains

A small percentage of this MLRA exists on BLM lands. Upland habitat would improve under this alternative, resulting in the improvement of some wildlife habitat within the MLRA.

51 - High Intermountain Valleys

Big Game

Long-term benefits to big game would occur from the Fallback Alternative by utilizing the most restrictive guidelines on livestock grazing, and improving upland habitat currently in poor condition or not meeting the biotic standard due to grazing practices. Rocky Mountain elk would continue to be a key wildlife species within the Taos field office. Critical winter range would be improved through implementation of the Fallback standards and guidelines.

Upland Game and Nongame

Upland sites would improve over the long-term from land treatments and proper grazing practices, resulting in a benefit for scaled quail, mourning dove, Merriam's turkey, numerous raptors, and migratory bird populations. The continued construction of water developments would favor upland game bird species.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land - resident fisheries habitat over the long-term would be improved.

70 - Pecos/Canadian Plains and Valleys Big Game

Short-and long-term benefits to big game would result from the Fallback Alternative by utilizing the most restrictive guidelines on livestock grazing, and improving upland habitat currently in poor condition or not meeting the biotic standard due to grazing practices. The implementation of guidelines which identify proper grazing practices, vegetative land treatments, and water developments would improve wildlife habitat for big game species over the long-term. Natural events (fire, flooding, etc.) That create a mosaic within the landscape and diversify the plant community would also benefit wildlife. There would be a slight increase in the deer population through improving the quality and quantity of browse on upland sites, and creating new fawning areas. Pronghorn antelope populations are expected to increase over the long-term due to improved habitat conditions and transplants. Habitat conditions would improve over the long-term due to improved ecological conditions and movement patterns. Antelope transplants would be expected to continue in cooperation with the NMDGF and other land owners.

Upland Game and Nongame

Upland sites would improve over the long-term from land treatments and proper grazing practices, resulting in a benefit for scaled quail, bobwhite quail, mourning dove, numerous raptors, and migratory bird populations. The continued construction of water developments where needed would favor upland game bird species.

With the current regional emphasis on the decline of lesser prairie chicken populations, this alternative would have short-and-long-term benefits on approximately 272,000 acres of lesser prairie chicken habitat that would meet special habitat requirements. Recent droughty conditions along with year-long grazing has impacted lesser prairie chicken habitat from the removal of residual growth on bluestems. Most allotments within the Caprock WHA allow for year-long grazing and therefore may exceed the utilization levels required for proper nesting habitat. Under this alternative, wildlife resource conflicts between grazing and lesser prairie chickens would be minimized with the emphasis placed on native populations and their habitat, especially during drought years.

Waterfowl/Fisheries

Habitat quality for resident fisheries and waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land-resident fisheries habitat over the long-term would be improved.

77 - Southern High Plains

Big Game

The BLM manages very little public land within this MLRA. However, this alternative would improve wildlife habitat by establishing strict livestock management-guidelines compatible with wildlife resources.

Upland Game and Nongame

Upland sites would improve in the short- and long-term under this alternative, resulting in a benefit for most upland game and nongame species.

Waterfowl

Habitat quality for waterfowl would generally change in response to the changes in overall riparian and aquatic habitats. Public land resident fisheries habitat over the long-term would be improved.

SPECIAL STATUS SPECIES

Under the Fallback Alternative, the focus of

management and application of grazing guidelines would occur on public lands not meeting the biotic and upland standards, and public land not meeting the upland standard due to current grazing practices. It is more efficient to manage an entire pasture than to manage a small portion of a pasture. Managing the smaller portion would likely incur large costs for fencing, establishment of water sources, and other management facilities. These areas are contained primarily within the desert biome of MLRAs 36, 37, and 42, and the grassland biome of MLRA 70. There would be benefits to a portion of the 95 species occurring in the improved areas of the desert and grassland biomes managed under this alternative. Of concern when implementing livestock grazing practices is that the approximately 4,285,000 acres in areas of late-seral and PNC ecological status not decline due to redistribution of grazing patterns. These areas, in many cases, provide suitable habitat to support special status species with high-seral habitat requirements.

Also of concern in this alternative are the approximately 112 riparian segments that do not meet the proposed standards, due, at least in part, to livestock grazing. The greatest benefits to special status species resulting from this alternative would be the improvement of riparian conditions on 20 riparian segments in the short-term and 58 riparian segments in the long-term. Many of the 76 special status species associated with public land riparian areas and their aquatic systems would benefit from the improvement in riparian condition.

Areas that have passed the threshold of improvement have lost the capability to recover toward PNC within the long-term of this analysis, even in the absence of grazing. In some cases, the PNC has shifted to a different community. Even with chemical or mechanical manipulation, these areas may never re-establish a community like the lost native community. This is due to the change in ecosystem functionality that occurs with the combined impacts of soil loss and vegetative community shifts associated with major disruptions caused by past land use practices and climate change. Examples of these are former desert grasslands which are now mesquite sand dunes and creosote bush/desert pavement communities of the Chihuahuan Desert in MLRA 42. Special status species that formerly used these areas will have differing abilities to recolonize these habitats as the relative condition improves with subsequent management. Some species, such as obligate grassland species like Baird's sparrow, may never be able to return to former habitats for these reasons. Other areas, such as the shinnery oak/dunes areas of MLRAs 42 and 70 retain profound capability to return to previous grassland dominance, and the ability to support grassland species, such as the lesser prairie chicken.

RECREATION

Recreational visitor use would continue to increase, especially in areas where urban visitors recreate. Developed recreation sites are expected to have increased use. The recreational use levels on a statewide basis would not be expected to be impacted by the standards or the livestock grazing guidelines.

The Fallback Alternative would provide for increased management of off-highway vehicle use and less road proliferation on 4,600 acres in MLRA 36 and 8,000 acres in MLRA 42. Although this area may be important to off-highway vehicle visitors frequenting the area, on a statewide basis it represents a small percent of the public land acreage.

Increased recreation management would occur on 10,600 acres in MLRA 36 and 500 acres in MLRA 37 where recreational activities are keeping the area from meeting the upland standard. Additionally, there are 12,600 acres in MLRA 36 not meeting the biotic standard due to recreation activities.

Considering that there may be overlap on many of the acres identified as having recreation conflicts with the standards, the additional restrictions would occur on less than 33,700 acres. This would not be a detectable impact on the recreational use of the public lands on a statewide basis.

It is expected that the present conflicts between livestock use and the developed area at the Wild Rivers Recreation Area would be resolved over the next five years. As additional recreational sites are developed, livestock would be expected to be excluded.

The BLM would be expected to resolve livestock grazing conflicts on riparian areas. In the long-term, an additional 58 riparian segments would be expected

to improve in condition, improving the quality of the visit for recreationists on the public lands.

Not all the acres are failing to meet the standards due to livestock grazing. However, many acres would be

expected to have an improved quality of the visit for recreational visitors due to the improved native vegetation and animal communities.

WILDERNESS

The Fallback Alternative standards place emphasis only on the natural systems, which would tend to speed up the improvement in the natural systems.

Where sites that are not meeting the standard are included in WAs or WSAs, they would be expected to be a high priority for improved management. The review of WAs and WSAs to determine if they meet the standards should help determine what management changes are needed. However, in WAs and WSAs the Wilderness Act and BLM management guidelines for these areas would limit some of the tools for management. For example, the range improvements that are normally applied to support improved livestock grazing management and land treatment techniques may not be permitted in WAs and in WSAs. However, if the WAs and WSAs meet the standards, there would be no impact on wilderness values.

CULTURAL RESOURCES

Under the Fallback Alternative, emphasis on stabilizing soils, reducing erosion, restoring riparian-wetland areas and streambank stability, providing periods of rest to allow for plant growth or regrowth, and locating of new, and relocating of existing facilities away from riparian areas would all contribute to a reduction in the rate of damage to cultural resources.

PALEONTOLOGY

Under this alternative, emphasis on stabilizing soils reducing erosion, restoring riparian-wetland areas and streambank stability, providing periods of rest to allow for plant growth or regrowth, and locating new, and relocating of existing facilities away from riparian areas would all contribute to a reduction in the rate of damage to paleontological resources.

REALTY/LAND USE

Impacts on realty and land use actions would be same as for the Proposed Action.

MINERAL RESOURCES

Impacts on mineral resources would be the same for the Proposed Action.

NATIVE AMERICAN CULTURAL ISSUES

Native American concerns would continue to be protected under the laws as outlined in Chapter 3. Emphasis on the use of native plant species and improved habitat would ensure continued or enhanced availability of plant and animal species traditionally used by Native Americans.

ECONOMIC

Under Fallback alternative and the scenario that all ranches stayed in business, the least economic impact was when there were no AUM reductions. The initial loss of economic activity (Table 4-17, Table 4-18) was almost $7.9 million of which approximately a $1.5 million loss in personal income. An initial loss of 56 FTEs was estimated under this alternative. As compared to the $24 million loss when 20% of AUMs were reduced and 22% of the ranches converted to real estate. These impacts were for a single year and were aggregated over a seven year period to quantify the cumulative impacts to year seven.

Year 10 cumulative impacts included an authorization of additional AUMs, which allowed the ranch unit to restock any AUMs that were reduced plus 1/3 of the AUMs toward preference. The Fallback Alternative minimum impact after 10 years occurred when none of the ranches converted to real estate, no AUM reductions, and the ranch financed the improvements. The greatest economic loss occurred when there was a 20% reduction in AUMs and BLM financing of improvements under the scenario of 22% of ranches not meeting standard and converting to real estate. After the tenth year of implementation of the guidelines, the negative impacts due to implementation of improvements lessened to only maintenance and repairs under this alternative.

Table 4-17: Fallback Alternative - Economic Impacts (cumulative)				
All range livestock- no ranches converting to real estate				
Year 1	**Fallback, No BLM AUM Reduction**		**Fallback 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(7,870,000)	(7,859,000)	(15,004,000)	(14,992,000)
Personal Income	(1,537,000)	(1,826,000)	(2,648,000)	(2,967,000)
Employment	(56.02)	(51.84)	(130.29)	(125.69)
Year 14	**Fallback, No BLM AUM Reduction**		**Fallback 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(55,828,000)	(55,720,000)	(48,866,000)	(48,747,000)
Personal Income	(12,410,000)	(15,305,000)	(11,685,000)	(14,879,000)
Employment	(23.67)	(19.49)	(10.34)	(5.74)
Year 21	**Fallback, No BLM AUM Reduction**		**Fallback 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(7,890,000)	(7,782,000)	60,075,000	60,195,000
Personal Income	(5,928,000)	(8,823,000)	3,964,000	770,000
Employment	33.07	37.25	46.40	51.00

Table 4-18: Fallback Alternative - Economic Impacts (cumulative)				
All range livestock ranches w/22% converting to real estate				
Year 1	**Fallback, No BLM AUM Reduction**		**Fallback 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(18,166,000)	(18,157,000)	(23,954,000)	(23,945,000)
Personal Income	(3,042,000)	(3,268,000)	(3,941,000)	(4,190,000)
Employment	(163.28)	(160.06)	(224.33)	(220.75)
Year 14	**Fallback, No BLM AUM Reduction**		**Fallback 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(153,112,000)	(153,028,000)	(163,819,000)	(163,726,000)
Personal Income	(26,090,000)	(28,348,000)	(28,014,000)	(30,505,000)
Employment	(121.71)	(118.49)	(131.94)	(128.36)
Year 21	**Fallback, No BLM AUM Reduction**		**Fallback 20% BLM AUM Reduction**	
Capital Outlay	50 & 100% BLM	100% Rancher	50 & 100% BLM	100% Rancher
Economic Activity	(92,790,000)	(92,706,000)	(69,814,000)	(69,721,000)
Personal Income	(16,701,000)	(18,959,000)	(13,643,000)	(16,135,000)
Employment	(42.03)	(38.81)	(52.26)	(48.68)

In year 14 under the Fallback Alternative, it was assumed another 1/3 of preference AUMs were authorized on the BLM permits/leases that had previously not met the standard. Minimum impacts (Table 4-17) occurred when was a 20% reduction of AUMs and the rancher funded 100% of the improvements. These impacts included: losses of almost $48 million in economic activity, losses of $15 million in personal income, and a loss of 5.74 FTEs. The greatest economic loss occurred when 22% of the ranches converted to real estate and there was a 20% reduction of AUMs and the BLM funded the cost of improvements (Table 4-18). These impacts included: a loss of almost $164 million in economic activity, a loss of $28 million in personal income, and a loss of almost 132 FTEs.

Year 21 was the final year of analysis; it was assumed that the allotment should have achieved an ecological condition surpassing the standards and the allotment would be operated with full preference AUMs. The economic impacts varied widely dependant upon the assumptions, and options analyzed. It was recognized that the actual impacts would be in the range between the minimum and maximum economic impacts estimated, since there would be a wide variety of allotment conditions, improvement construction, financing of the improvements, and rancher reactions. Therefore, it was believed that the economic impacts would actually be in a range for this alternative (Tables 4-17 and 4-18). An important assumption in the analysis was that allotments not meeting the standard would be operated at preference AUMs at the end of 21 years, without this assumption all impacts would be negative.

Under the Fallback Alternative, the economic impacts were estimated to be between a loss in economic activity of $92.7 million and a gain of $60 million depending upon a combination of scenarios, assumptions, and options. The range for personal income would be expected to be between a loss of about $19 million and a gain of almost $4 million. For jobs the range is estimated to be between a loss of almost 52 FTEs and a gain of 51 FTEs.

Revised Economic Analysis

This analysis recalculated the economic impacts after the methodology modifications. It includes the allotments meeting the standard moving toward preference along with the allotments that did not meet the standard. This assumes that all BLM allotments within the State of New Mexico are grazing at the historical preference by year 21.

Under this modified methodology the initial (year 1) and Year 7 impacts are identical to the impacts before the modification. However, after year 7 the negative impacts are less than the initial analysis due to the additional allotments moving toward preference.

In year 14 under the Fallback Alternative, it was assumed another 1/3 of preference AUMs were authorized on all of the BLM permits/leases. Minimum impacts (Table 4-19) occurred when was no reduction of AUMs and the rancher funded 100% of the improvements. These impacts included: losses of almost $28 million in economic activity, losses of $11 million in personal income, and a gain of 17 FTEs. The greatest economic loss occurred when 22% of the ranches converted to real estate and there was a 20% reduction of AUMs and the BLM funded the cost of improvements (Table 4-20). These impacts included: a loss of almost $184 million in economic activity, a loss of $31 million in personal income, and a loss of almost 90 FTEs.

Year 21 was the final year of analysis; it was assumed that the allotments should have achieved an ecological condition surpassing the standards and all of the allotments would be operated with full preference AUMs. The economic impacts varied widely dependant upon the assumptions, and options analyzed. It was recognized that the actual impacts would be in the range between the minimum and maximum economic impacts estimated, since there would be a wide variety of allotment conditions, improvement construction, financing of the improvements, and rancher reactions. Therefore, it was believed that the economic impacts would actually be in a range for this alternative (Tables 4-19 and 4-20). An important assumption in the analysis was that all BLM allotments would be operated at preference AUMs at the end of 21 years, without this assumption all impacts would be negative.

Under the Fallback Alternative, the economic impacts were estimated to be between a loss in economic activity of $95 million and a gain of $47 million depending upon a combination of scenarios, assumptions, and options. The range for personal

Table 4-19: Fallback Alternative - Economic Impacts (cumulative)		
All range - no ranches converting to real estate		
Year 1 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(7,870,000) (7,859,000) (1,537,000) (1,826,000) (56) (52)	(15,004,000) (14,992,000) (2,648,000) (2,967,000) (130) (126)
Year 7 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(55,092,000) (55,016,000) (10,758,000) (12,784,000) (56) (52)	(105,030,000) (104,947,000) (18,535,000) (20,771,000) (130) (126)
Year 10 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(69,438,000) (69,330,000) (13,946,000) (16,841,000) (32) (28)	(107,368,000) (107,248,000) (19,944,000) (23,136,000) (20) (16)
Year 14 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(28,284,000) (28,176,000) (8,113,000) (11,008,000) 13 17	(99,290,000) (99,171,000) (19,319,000) (22,514,000) 33 38
Year 21 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	47,198,000 47,306,000 2,635,000 (260,000) 74 78	(23,222,000) (23,103,000) (8,793,000) (11,987,000) 94 99

Table 4-20: Fallback Alternative - Economic Impacts (cumulative)		
All range livestock ranches w/22% converting to real estate		
Year 1 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(18,166,000) (18,157,000) (3,042,00) (3,268,000) (163) (160)	(23,954,000) (23,945,000) (3,941,000) (4,190,000) (224) (221)
Year 7 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(127,158,000) (127,099,000) (21,294,000) (22,874,000) (163) (160)	(167.678,000) (167,612,000) (27,585,000) (29,329,000) (224) (221)
Year 10 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(169,842,000) (169,758,000) (28,444,000) (30,702,000) (128) (125)	(207,623,000) (207.530,000) (34,371,000) (36,862,000) (140) (136)
Year 14 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(125,567,000) (125,483,000) (21,793,000) (24,051,000) (86) (82)	(183,452,000) (183,359,000) (30,780,000) (33,272,000) (90) (87)
Year 21 Capital Outlay	Fallback, No BLM AUM Reduction 50 & 100% BLM 100% Rancher	Fallback, 20% BLM AUM Reduction 50 & 100% BLM 100% Rancher
Economic Activity Personal Income Employment	(37,701,000) (37,617,000) (8,132,000) (10,390,000) (5) (2)	(95,586,000) (95,493,000) (17,160,000) (19,651,000) (10) (7)

income would be expected to be between a loss of about $19 million and a gain of almost $3 million. For jobs the range is estimated to be between a loss of almost 10 FTEs and a gain of 99 FTEs.

HUMAN DIMENSION

Financial, Social and Cultural Impact Analyses

The Fallback Alternative has four standards, all of which are physical and biological standards. The Fallback Standards do not mention a Sustainable Communities and Human Dimension Standard.

Financial Impacts

Under the Fallback Alternative the ranchers face the same effects discussed in the RAC, though approximately one eighth more ranches would be effected.

Based on the analysis of the four New Mexico regions, the ranches not meeting the standard that have a heavy dependency on public lands would be the most affected by the BLM management changes. These ranchers may not be able to sustain their ranch operations into the next year. The affected ranchers would be less able to meet their overhead expenses, especially given their increased costs of improvements and maintenance.

Faced with short-term financial loss the rancher's options to reduce substantial financial risk are:

find additional off ranch income
find private land to rent for livestock, if available
large ranches could sell off their assets
acquire other government lands to use, if available
reduce size of operations
sell their land and water rights (liquidate)

Financial Impacts by Region: The remainder of this section discusses financial impacts by region, summary financial threshold tables and summary. The financial threshold analysis is based on the 10-year-average (See Appendix D).

Central Mountain Region: The extra-small ranch not meeting the standard would no longer meet the Financial Threshold for Production; therefore, grazing on the BLM permit portion would not be financially viable, at least for the short-term. The small, medium, and large ranches not meeting the standard could still meet the Financial Threshold for Production, but at a much reduced level (losses of gross margin of 82.5%, 44%, and 31%respectively) (Table 4-21). These ranches not meeting the standard would not be able to meet the Financial Threshold for Risk (Table 4-22). Therefore financial activities could be substantially reduced or eliminated on all four ranch size categories not meeting the standard, unless the financial impacts are mitigated.

Northwest Region: The extra-small and small ranches not meeting the standard would no longer meet the Financial Threshold for Production, therefore grazing on the BLM permit portion would not be financially viable, at least for the short-term. The medium and extra-large ranches not meeting the standard could still meet the Financial Threshold for Production, but at a much reduced level (losses of gross margin of 67% and 71%, respectively) (Table 4-21). The ranches not meeting the standard would be not able to meet the Financial Threshold for Risk (Table 4-22).

Southeast Region: All five ranch size categories not meeting the standard could still meet the Financial Threshold for Production, but at a much reduced level (losses of gross margin: extra-small-93%; small-75%; medium-77%; large-64%; and extra-large-68%) (Table 4-21). The five ranch sizes not meeting the standards would not be able to meet the Financial Threshold for Risk (Table 4-22).

Southwest Region: The small ranches not meeting the standard would no longer meet the Financial Threshold for production; therefore grazing on the BLM permit portion would not be financially viable, at least for the short-term. The extra-small, medium, large and extra-large ranches not meeting the standard could still meet the Financial Threshold for Production, but at a much reduced level (loss of gross margin of 89%, 91%, 84%, and 80%, respectively) (Table 4-21). The ranches not meeting the standard would not be able to meet the Financial Threshold for Risk (Table 4-22). Only the affected medium ranches not meeting the standard would continue financial

Synopsis Table 4-21 Fallback Alternative Affected ranches not meeting the standard, Financial Threshold for Production				
	Central Mountain Region	**Northwest Region**	**Southeast Region**	**Southwest Region**
Extra-small ranches	Not Possible	Not Possible	Meeting	Meeting
Small ranches	Meeting	Not Possible	Meeting	Not Possible
Medium ranches	Meeting	Meeting	Meeting	Meeting
Large ranches	Meeting	--n/a--	Meeting	Meeting
Extra-large ranches	--n/a--	Meeting	Meeting	Meeting

Note: The information in the above table assumes: 1) there will be not reduction in BLM AUMs, and 2) the rancher is not required to bear the cost of improvements.

Source: Southwest Center for Resource Analysis Report - prepared by Rita D. Harbison, M.B.A. -WNMU.

Synopsis Table 4-22 Fallback Alternative Affected ranches not meeting the standard, Financial Threshold for Risk				
	Central Mountain Region	**Northwest Region**	**Southeast Region**	**Southwest Region**
Extra-small ranches	Not Possible	Not Possible	Not Possible	Not Possible
Small ranches	Not Possible	Not Possible	Not Possible	Not Possible
Medium ranches	Not Possible	Not Possible	Not Possible	Meeting
Large ranches	Not Possible	--n/a--	Not Possible	Not Possible
Extra-large ranches	--n/a--	Not Possible	Not Possible	Not Possible

Note: The information in the above table assumes: 1) there will be no reduction in BLM AUMs, and 2) the rancher is not required to bear the cost of improvements.

Source: Southwest Center for Resource Analysis Report - prepared by Rita D. Harbison, M.B.A. -WNMU.

activity associated with the BLM permit, and only if these ranches do not experience a 20 percent reduction in BLM AUMs, and/or if the rancher is not required to bear the costs of improvements.

Financial Summary: This alternative has a potential negative effect on the current conditions of public ranch operations. All size classes of public land ranches have the potential to be put at financial risk. The Fallback Alternative would be more adverse financially to the affected ranchers than either the County or RAC Alternatives. The Fallback has the most indirect negative economic impacts to local governments and agencies with the potential loss of taxes and fees from reduced numbers of livestock, private property assessments and improvements. In the long-term, financial improvement is dependent upon mitigation measures to reduce the financial burden on the ranchers, as well as local governments and agencies.

Social Impacts

The foundation for determination of the affects to social indicators can best be evaluated by looking at economic and financial information. Quantification of social impacts is not possible due to lack of being able to identify specific lands not meeting the standards. Thus, the level of impact at the individual, family and community level can not be determined at this time.

Based on economic and financial data available, only the direction of impact can be estimated. Table 4-23 shows the expected direction for social effect indicators on rural communities with dependence on public land grazing. Based on these estimates, this alternative could have adverse impacts on affected ranches as discussed in the RAC Alternative, except that the degree and intensity of impacts would be greater than the RAC Alternative.

As livestock grazing or other activities are adjusted, the cumulative effects will increase. Each community has a threshold for the amount of change it can absorb and still function. The threshold for each community will depend upon the individual community's characteristics.

Family Stability

Family stability is the ability of the family to function in harmony without family strife, such as domestic violence and divorce. One of the greatest impacts to family stability is the loss of livelihood, according to empirical social research (Blehar, 1979 and Fagin and Little, 1984). With the loss of employment, the breadwinner is relegated from a position of dignity and worth to low self esteem (Borrero, 1980).

For those ranches that have lands that do not meet the standards and have to adjust their grazing operations to be in concert with the grazing guidelines, the

Table 4-23
Direction of Social Indicators based on Fallback Alternative

Social Indicators	Short-term	Long-term	Measurement
Family Stability	Downward	Upward	Personal Income
Rural Community Stability	Downward	Upward	Employment and Census
Local Government Stability	Downward	Upward	County Budget
Agricultural Land Use	Downward	Upward	Total Acres

additional costs of range improvement construction, rotating livestock or finding additional pasture would result in additional costs and less return to support the family, in the short-term. Depending on the individual family's circumstances, impacts to ranch families could be far reaching. A potential exists for a ranch family to be put at financial risk and some ranchers might go out of business. This could put the family through a threshold where divorce, crime, suicide, alcohol and family violence break down family stability. Where the family has more stress than it can endure, the family might leave the rural community or perhaps reduce its role in the community.

A reasonable projection of family stability is personal income (Branch et al., 1982). Based on the economic analysis, the statewide personal income generated from public land livestock grazing is expected to drop, under this alternative. Althrough in the long-term personal income could improve from the short-term low it would not reach the present level. Thus, family stability would remain lower, at least for a portion of the families.

Rural Community Stability

Rural community stability is the capacity of the rural community to absorb the rate and magnitude of change. Employment provides a measure of the impact on rural community stability (Branch, et al., 1982). The exact impacts on employment can not be determined at this time. According to the Economic Impact Analysis discussed in the previous section, the potential short-term employment loss from the Fallback Alternative is 224 jobs. These jobs are hired help; most of these ranches are family run operations with the family contributing most of the labor. Over 450 ranches could be put at financial risk under the Fallback Alternative. Based on typical ranch characteristics, if the average ranch family size is 3 members, and on the average 2.5 family members work on the ranch (Fowler, 1993); multiply that times 400 ranches for a total of 1,125 family jobs that would potentially adversely affected. Combining the family jobs with the wage jobs, 1,350 jobs could potentially be affected.

Small isolated communities are more vulnerable due to weaker links to centers of political and economic influence and a less flexible job base. Because of this, the smaller communities are more likely to experience unemployment, increased poverty, and social disruption (Range Reform '94). Social mobility, eroding the agrarian way of life, and out-migration of moderate to low income and/or ethnic minority groups and communities could be accelerated. If employment losses are concentrated in a few communities and if other factors contribute to low community resistance, the result may be a less stable community. However, if employment impacts are dispersed statewide, the destabilization to the rural communities would be less. Rural community stability could improve in the long-term, through increased employment.

Local Government Stability

Local government stability is the ability to provide services such as education, medical care, emergency services, environmental services, law enforcement, fire protection, water, roads, and waste services. In rural counties, these services are often dependent upon land value, agricultural production and the taxes they generate. When these services can no longer be provided due to the loss of revenues, adjustments in the quality or quantity of services must be made. This may result in a community passing through a threshold for local government services, as typically schools are consolidated with larger school systems when budgets are not adequate. When schools are consolidated, their ability to foster community cohesiveness declines.

A reasonable measure of local government stability is employment, agricultural products and agricultural land. They provide a tax base for the county budget. Statewide, employment generated from public land livestock grazing is projected to drop in the short-term. This could have an adverse impact on local government. The degree of impact to local government would depend on whether the effects are concentrated or dispersed among communities. The local government stability could be expected to improve in the long-term with an improved tax base.

Agricultural Land Use

Agricultural land use is the total acres of land devoted to producing crops and raising livestock. Under this alternative, it is expected that at least some of the ranchers could find the short-term impacts to their livestock grazing operations too great and they would select the option to go out of business rather than continue livestock grazing operations. Thus, a reduction in acreage of agricultural land use could be

expected in the short-term. With no emphasis on the Human Dimension the ranchers would be less likely be able to sell to new livestock operators.

Cultural Impacts

If changes impact the traditions, heritage, attitudes, beliefs and values, the culture is affected. For this analysis, cultural impacts cannot be quantified and are best evaluated by looking at feedback information. The following two methods are utilized in this analysis:

public polls
public comments

In a poll conducted by the University of New Mexico's Public Policy Center, a substantial majority (over 75%) of New Mexico citizens believe it to be moderately to extremely important to preserve ranching as a way of life in the State. However, the same poll identified that 49 percent view environmental preservation as the top priority and 22 percent view recreational use as the top priority. Thus, approximately 71 percent would support a program that provides for environmental enhancement or recreational opportunities.

Rural Values, Attitudes and Beliefs

Most of the public land ranches in New Mexico are family run businesses, originating from three land based cultures (Hispanic, Native American and Anglo-Celtic) discussed in Chapter Three. Where reduced revenues force individuals from their traditional manner of living, the ranch operation is impacted adversely. This affects the extended families, which in turn affects the ranching based cultures. The sense of place with its association with a sense of well-being and community stability would be reduced for the ranching communities if adverse impacts are concentrated.

The rural communities of the arid southwest are made up of people who share beliefs and values which are, if not embodied by, closely linked to the culture of ranching (Smith, 1997). People who ranch rely on their interaction with the public lands for the centering and stabilizing of the lifeway. As the individuals who ranch are displaced by increased economic pressures and/or the demand for changing uses, the values of the communities as a whole begin to fade in the descent toward a more homogenous national monoculture. This can be particularly important for Native American and Hispanic ranchers from Northern New Mexico where livestock operations tend to be vulnerable due to their small size. Additionally, the Anglo-Celtic culture cannot exist without grazing cattle in the highlands (McWhiney, 1988).

Of the commentors on the Draft RMPA/EIS reflecting rural or agricultural values, approximately 72 percent supported the County Alternative. They expressed that it is important to have the Human Dimension Standard. The Fallback Alternative was viewed as the most negative for their interests. They supported the County Alternative because of its greater emphasis on the Human Dimension.

Environmental Values, Attitudes and Beliefs

The poll conducted by the University of New Mexico's Public Policy Center found that 49 percent of New Mexico citizens believe environmental preservation to be the top priority. Based on their commitment that environmental preservation is their number one priority, it is reasonable to group these individuals into a culture.

Of the commentors on the Draft RMPA/EIS reflecting environmental values are important, approximately 47 percent supported the Fallback Alternative. They expressed that the Fallback Alternative best met the intent of the regulations and the physical and biological needs.

Conclusion

Environmental interests support the Fallback Alternative over any other alternative. However, the rural interests oppose the Fallback Alternative the most of any of the alternatives. Table 4-24 shows the expected direction for cultural indicators. Based on the University of New Mexico's Public Policy Center poll this alternative would please the 71 percent of New Mexico citizens who view environmental preservation or recreation as top priority, but may be a concern to over 75 percent of New Mexico citizens who view preservation of ranching as a way of life to be moderately to extremely important.

Table 4-24 **Consistency with Cultural Indicators - Fallback Alternative**		
Cultural Indicators	**Short-term/Long-term**	**Measurement**
Rural Values, Attitudes and Beliefs	Low	Comments
Environmental Values, Attitudes and Beliefs	High	Comments

COMMON TO ALL ALTERNATIVES

INTRODUCTION

Throughout the process of developing this EIS numerous parties have surfaced concerns about the relationship of the establishment of standards and guidelines to property rights, civil rights, environmental justice including disproportionate distributional effects and consideration of State laws and county ordinances. Environmental justice has several aspects including Constitutional, statutory, regulatory and executive order mandates. The following discussion is provided to give the reader an understanding of the guidelines provided by the Constitution of the United States, Federal and State law, Federal regulations, Executive Orders, county ordinances and BLM policies regarding these issues and BLM's planned mitigation. Regardless of which alternative is selected by BLM, the relationship between the programs and guidelines will be the same for all the alternatives.

CONSTITUTION

ARTICLE VI

[2] This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

Amendment V

No person shall ... be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

Amendment XIV

Section 1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

Analysis

Establishment of Standards and Guidelines would not deprive any citizen of life, liberty or property. The program would be consistent with mandates of the Constitution. Implementation of the Standards and Guidelines will be monitored to insure that Constitutional mandates are complied with for fair treatment and due process.

LAWS OF THE UNITED STATES

Civil Rights Act - Title VI

Sec. 601. No person in the United states shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

The National Environmental Policy Act (NEPA) of 1969, as amended

TITLE 1

DECLARATION OF NATIONAL ENVIRONMENTAL POLICY

Section 101. (a) The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

(b) In order to carry out the policy set forth in this Act, it is the continuing responsibility of

the Federal Government to use all practicable means, consistent with other essential considerations of national policy to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may -

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

(2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;

(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

(4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;

(5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

(6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

(c)The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.

Section 102. The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in the Act, and (2) all agencies of the Federal Government shall -

(A) Utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;

(B) Identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;

(C) Include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on -

(i) The environmental impact of the proposed action,
(ii) Any adverse environmental effects which cannot be avoided should the proposal be implemented,
(iii) Alternatives to the proposed action,
(iv) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
(v) Any irreversible and irretrievable commitments of resources which would be

involved in the proposed action should it be implemented. . . .

(D) Any detailed statement required under subparagraph (C) after January 1, 1970, for any major Federal action funded under a program of grants to States shall not be deemed to be legally insufficient solely by reason of having been prepared by a State agency or official, if:

(i) the State agency or official has statewide jurisdiction and has the responsibility for such action,
(ii) the responsible Federal official furnishes guidance and participates in such preparation,
(iii) the responsible Federal official independently evaluates such statement prior to its approval and adoption, and
(iv) after January 1, 1976, the responsible Federal official provides early notification to, and solicits the views of, any other State or any Federal land management entity of any action or any alternative thereto which may have significant impacts upon such State or affected Federal land management entity and, if there is any disagreement on such impacts, prepares a written assessment of such impacts and views for incorporation into such detailed statement.

The procedures in this subparagraph shall not relieve the Federal official of his responsibilities for the scope, objectivity, and content of the entire statement or of any other responsibility under this Act; and further, this subparagraph does not affect the legal sufficiency of statements prepared by State agencies with less than statewide jurisdiction.

(E) Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

(F) Recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designated to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment;

(G) Make available to States, counties, municipalities, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment;

(H) Initiate and utilize ecological information in the planning and development of resource-oriented projects; and . . .

Section 105. The policies and goals set forth in this Act are supplementary to those set forth in existing authorizations of Federal agencies.

The Taylor Grazing Act (TGA)

Section 1 [untitled] states in part: Nothing in this Act shall be construed in any way to diminish, restrict, or impair any right which has been heretofore or may be hereafter initiated under existing law validly affecting the public lands, and which is maintained pursuant to such law except as otherwise expressly provided in this Act, nor to affect any land heretofore or hereafter surveyed which, except for the provisions of this Act, would be a part of any grant to any State, nor as limiting or restricting the power or authority of any State as to matters within its jurisdiction.

Section 2 of the Act states in part: The Secretary of the Interior shall make provision for protection, administration, regulation, and improvement of such grazing districts as may be created under authority of the foregoing section, and he shall make such rules and regulations and establish such service, enter into such cooperative agreements, and do any and all things necessary to accomplish the purposes of this Act and to insure the objects of such grazing districts, namely to regulate their occupancy and use, to preserve the land and its resources from destruction or unnecessary injury, to provide for the orderly use, improvement, and development of the range;...

Sec. 3. The Secretary of the Interior is authorized to issue or cause to be issued permits to graze livestock on such grazing districts to such bona fide settlers, residents, and other stock owners under his rules and regulations are entitled to participate in the use of the range, upon the payment annually of reasonable fees in each case to be fixed or determined from time to time, and in fixing the amount of such fees the Secretary of the Interior shall take into account the extent to which such districts yield public benefits over and above those accruing to the users of the forage for livestock purposes. Such fees shall consist of a grazing fee for the use of the range, and a range-improvement fee which, when appropriated by the Congress, shall be available until expended solely for the construction, purchase, or maintenance of range improvement. Grazing permits shall be issued only to citizens of the United States or to those who have filed the necessary declarations of intention to become such, as required by the naturalization laws, and to groups, associations, or corporations authorized to conduct business under the laws of the State in which the grazing district is located. Preference shall be given in the issuance of grazing permits to those within or near a district who are landowners engaged In the livestock business, bona fide occupants of settlers, or owners of water or water rights, as may be necessary to permit the proper use of the lands, water, or water rights owned, occupied, or leased by them, except that until July 1, 1935, no preference shall be given in the issuance of such permits to any owner, - occupant, or settler, whose rights were acquired between January 1, 1934, and December 31, 1934, both dates inclusive, except that no permittee complying with the rules and regulations laid down by the Secretary of the Interior shall be denied the renewal of such permit, if such denial will impair the value of the grazing unit of the permittee, when such unit is pledged as security for any bona fide loan. Such permits shall be for a period of not more than ten years, subject to the preference right of the permittees to renewal in the discretion of the Secretary of the Interior, who shall specify from time to time numbers of stock and seasons of use. During periods of range depletion due to severe drought or other natural causes, or in the case of a general epidemic of disease, during the life of the permit, the Secretary of the Interior is authorized, in his discretion to remit, reduce, refund in whole or in part, or authorize postponement of payment of grazing fees for such depletion period so long as emergency exists: PROVIDED FURTHER, That nothing in this Act shall be construed or administered in any way to diminish or impair any right to the possession and use of water for mining, agriculture, manufacturing, or other purposes which has heretofore vested or accrued under existing law validly affecting the public lands or which may be hereafter initiated or acquired and maintained in accordance with such law. So far as consistent with the purposes and provisions of this Act, grazing privileges recognized and acknowledged shall be adequately safeguarded, but the creation of a grazing district or the issuance of a permit pursuant to the provisions of this Act shall not create any right title, interest, or estate in or to the lands. (43 U.S.C., sec. 315b).

Sec 4. Fences, wells, reservoirs, and other improvements necessary to the care and management of the permitted livestock may be constructed on the public lands within such

grazing districts under permit issued by the authority of the Secretary, or under such cooperative arrangement as the Secretary may approve. Permittees shall be required by the Secretary of the Interior to comply with the provisions of law of the Sate within which the grazing district is located with respect to the cost and maintenance of partition fences. No permit shall be issued which shall entitle the permittee to the use of such improvements constructed and owned by a prior occupant until the applicant has paid to such prior occupant the reasonable value of such improvements to be determined under the rules and regulations of the Secretary of the Interior. The decision of the Secretary in such cases is to be final and conclusive. (43 U.S.C., sec. 315c).

Sec 15. The Secretary of the Interior is further authorized, in his discretion, where vacant, unappropriated, and unreserved lands of the public domain are so situated as not to justify their inclusion in any grazing district to be established pursuant to this Act, to lease any such lands for grazing purposes, upon such terms and conditions as the Secretary may prescribe: PROVIDED, That preference shall be given to owners, homesteaders, lessees, or other lawful occupants of contiguous lands to the extent necessary to permit proper use of such contiguous lands, except that when such isolated or disconnected tracts embrace seven hundred and sixty acres or less, the owners, homesteaders, lessees, or other lawful occupants of lands contiguous thereto or concerning thereon shall have a preference right to lease the whole of such tract, during a period of ninety days after such tract is offered for lease, upon the terms and conditions prescribed by the Secretary: PROVIDED FURTHER, That when public lands are restored from a withdrawal, the Secretary may grant an appropriate preference right for a grazing lease, license, or permit to users of the land for grazing purposes under authority of the agency which had jurisdiction over the lands immediately prior to the time of their restoration. (43 U.S.C., sec. 315m)

The Federal Land Policy and Management Act (FLPMA)

Sec. 202 (C) In the development and revision of land use plans, the Secretary shall - . . .

(8) provide for compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans; and

(9) to the extent consistent with the laws governing the administration of the public lands, coordinate the land use inventory, planning, and management activities of or for such lands with the land use planning and management programs of other Federal departments and agencies and of the States and local governments within which the lands are located, including, but not limited to, the statewide outdoor recreation plans developed under the Act of September 3, 1964. (78 Stat. 897), as amended, and of or for Indian tribes by, among other things, considering the policies of approved State and tribal land resource management programs. In implementing this directive, the Secretary shall, to the extent he finds practical, keep apprised of State, local and tribal land use plans; assure that consideration is given to those State, local, and tribal plans that are germane to the development of land use plans for public lands; assist in resolving, to the extent practical, inconsistencies between Federal and non-Federal Government plans, and shall provide for meaningful public involvement of State and local government officials, both elected and appointed in the development of land use programs, land use regulations, and land use decisions for public lands, including early public notice of proposed decisions which may have a significant impact on non-Federal lands. Such officials in each State are authorized to furnish advice to the Secretary with respect to the development and revision of land use plans,

land use guidelines, land use rules, and land use regulations for the public lands within such State and with respect to such other land use matters as may be referred to them by him. Land use plans of the Secretary under this section shall be consistent with State and local plans to the maximum extent he finds consistent with Federal law and the purposes of this Act.

Section 402: (d) All permits and leases for domestic livestock grazing issued pursuant to this section, with the exceptions authorized in subsection (e) of this section, on and after October 1, 1988, may incorporate an allotment management plan developed by the Secretary concerned in consultation with the lessees or permittees involved. Prior to that date, allotment management plans shall be incorporated in grazing permits and leases when they are completed. The Secretary concerned may revise such plans from time to time after such consultation.

(e) Prior to October 1, 1988, or thereafter, in all cases where the Secretary concerned has not completed an allotment management plan or determines that an allotment management plan is not necessary for management of livestock operations and will not be prepared, the Secretary concerned shall incorporate in grazing permits and leases such terms and conditions as he deems appropriate for management of the permitted or leased lands pursuant to applicable law. The Secretary concerned shall also specify therein the numbers of animals to be grazed and the seasons of use and that he may reexamine the condition of the range at any time and, if he finds on reexamination that the condition of the range requires adjustment in the amount or other aspect of grazing use, that the permittee or lessee shall adjust his use to the extent that the Secretary concerned deems necessary. Such readjustment shall be put into full force and effect on the date specified by the Secretary concerned.

(f) Allotment management plans shall not refer to livestock operations or range improvements on non-Federal lands except where the non-Federal lands are intermingled with, or, with the consent of the permittee or lessee involved, associated with, the Federal lands subject to the plan. The Secretary concerned under appropriate regulations shall grant to lessees and permittees the right of appeal from decisions which specify the terms and conditions of allotment management plans. The proceeding sentence of this subsection shall not be construed as limiting any other right of appeal from decisions of such officials.

(g) Whenever a permit or lease for grazing domestic livestock is canceled in whole or in part, in order to devote the lands covered by the permit or lease to another public purpose, including disposal, the permittee or lessee shall receive from the United States a reasonable compensation for the adjusted value, to be determined by the Secretary concerned, of his interest in authorized permanent improvements placed or constructed by the permittee or lessee on lands covered by such permit or lease, but not to exceed the fair market value of the terminated portion of the permittee's or lessee's interest therein. Except in cases of emergency, no permit or lease shall be canceled under this subsection without two years' prior notification.

(h) Nothing in this Act shall be construed as modifying in any way law existing on the date of approval of this Act with respect to the creation of right, title, interest or estate in or to public lands or lands in National Forests by issuance of grazing permits and leases.

Section 701. (a) Nothing in this Act, or in any amendment made by this Act, shall be construed as terminating any valid lease, permit, patent, right-of-way, or other land use right or authorization existing on the date of approval of this Act.. . .

(f) Nothing in this Act shall be deemed to repeal any existing law by implication.

(g) Nothing in this Act shall be construed as limiting or restricting the power and authority of the United States or-

(1) as affecting in any way any law governing appropriation or use of, or Federal right to, water on public lands;
(2) as expanding or diminishing Federal or State jurisdiction, responsibility, interests, or rights in water resources development or control;
(3) as displacing, superseding, limiting, or modifying any interstate compact or the jurisdiction or responsibility of any legally established joint or common agency of two or more States or of two or more States and the Federal Government;
(4) as superseding, modifying, or repealing, except as specifically set fourth in this Act, existing laws applicable to the various Federal agencies which are authorized to develop or participate in the development of water resources or to exercise licensing or regulatory functions in relation thereto;
(5) as modifying the terms of any interstate compact;
(6) as a limitation upon any State criminal statute or upon the police power of the respective States, or as derogating the authority of a local police officer in the performance of his duties, or as depriving any State or political subdivision thereof of any right it may have to exercise civil and criminal jurisdiction on the national resource lands; or as amending, limiting, or infringing the existing laws providing grants of lands to the States.

(h) All actions by the Secretary concerned under this Act shall be subject to valid existing rights.

The Public Rangelands Improvement Act (PRIA) of 1978

SEC. 2. (a) The Congress finds and declares that-
(1) vast segments of the public rangelands are producing less than their potential for livestock, wildlife habitat, recreation, forage, and water and soil conservation benefits, and for that reason are in an unsatisfactory condition;
(b) The Congress therefore hereby establishes and reaffirms a national policy and commitment to:
(1) inventory and identify current public rangelands conditions and trends as a part of the inventory process required by section 201(a) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1711);
(2) manage, maintain and improve the condition of the public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process established pursuant to section 202 of the Federal Land Policy and Management Act (43 U.S.C. 1712);
SEC. 4. (a) Following enactment of the Act, the Secretary of the Interior and the Secretary of Agriculture shall update, develop (where necessary) and maintain on a continuing basis thereafter, an inventory of range conditions and record of trends of range conditions on the public rangelands, and shall categorize or identify such lands on the basis of the range conditions and trends thereof as they deem appropriate. Such inventories shall be conducted and maintained by the Secretary as a part of the inventory process required by section 201(a) of the Federal Land Policy and Management Act (43 U.S.C. 1711), and by the Secretary of Agriculture in accordance with section 5 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (16 U.S.C. 1603): shall be kept current on a regular basis so as to reflect changes in range conditions; an shall be available to the public.
(b) The Secretary shall manage the public rangelands in accordance with the Taylor Grazing Act (43 U.S.C. 315-315(o)), the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701-1782), and other applicable law consistent with the public rangelands improvement program pursuant to this Act. Except where the land use planning process required pursuant to section 202 of the Federal Land Policy and Management Act (43 U.S.C. 1712) determines otherwise or the Secretary determines, and sets forth his reasons for this determination that grazing uses should be

discontinued (either temporarily or permanently) on certain lands the goal of such management shall be to improve the range conditions of the public rangelands so that they become as productive as feasible in accordance with the rangeland management objectives established through the land use planning process, and consistent with the values and objectives listed in sections 2 (a) and (b) (2) of the Act.

SEC. 8. Sections 402 (d) and (e) (43 U.S.C. 1752 (d) and (e)) are hereby amended-

(a) by changing subsection (d) to read as follows:

"(d) All permits and leases for domestic livestock grazing issued pursuant to this section may incorporate an allotment management plan developed by the Secretary concerned. However, nothing in this subsection shall be construed to supersede any requirement for completion of court ordered environmental impact statements prior to development and incorporation of allotment management plans. If the Secretary concerned elects to develop an allotment management plan for a given area, he shall do so in careful and considered consultation, cooperation and coordination with the lessees, permittees, and landowners involved, the district grazing advisory boards established pursuant to section 403 of the Federal Land Policy and Management Act (43 U.S.C. 1753), and any State or States having lands within the area to be covered by such allotment management plan. Allotment management plans shall be tailored to the specific range condition of the area to be covered by such plan, and shall be reviewed on a periodic basis to determine whether they have been effective in improving the range condition of the lands involved or whether such lands can be better managed under the provisions of subsection (e) of this section. The Secretary concerned may revise or terminate such plans or develop new plans from time to time after such review and careful and considered consultation, cooperation and coordination with the parties involved. As used in this subsection, the terms 'court ordered environmental impact statement' and 'range condition' shall be defined as in the 'Public Rangelands Improvement Act of 1978'"

(b) by deleting in subsection (e) the words "Prior to October 1, 1988, or thereafter, in" and by inserting "In".

Clean Water Act (CWA) §313 [33 USC 1323] Federal Facilities Pollution Control

a. Each department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any property or facility, or (2) engaged in any activity resulting, or which may result, in the discharge or runoff of pollutants, and each officer, agent, or employee thereof in performance of his official duties, shall be subject to, and with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity including the payment of a reasonable service charge.

Analysis

The laws such as TGA, FLPMA and the CWA all mandate that BLM manage the public land and their uses in specific ways. The Constitution as well as NEPA and the Civil Rights Act provide supplemental direction that BLM must follow in carrying out the management of public lands. For example, although ranchers are not protected as a class unto themselves, all Americans are entitled to protection of their civil rights. Therefore, environmental justice requirements must be taken into account in administrating the public lands.

In establishing standards and guidelines and in implementation of amended land use plans, the action will not depend on the permittee/lessee's race, color, sex, religion, national origin, or age. The proposal and alternatives make no reference to taking any action except where the standards are not being met. During implementation BLM will insure environmental justice requirements are met.

The NEPA directs that BLM should in cooperation with State and local governments along with private organizations seek practicable measures to promote the

general welfare and maintain conditions that result in productive harmony between human need and those of nature. The standards would be a step in identification, creation and maintenance of productive harmony. The livestock grazing guidelines and their implementation should consider social, economic and other requirements of present and future generations of Americans, as directed by NEPA.

Additionally, NEPA requires that the Federal Official must be aware of the impacts of their actions before taking an action. This awareness can come from a variety of NEPA analysis documents including EAs and EISs. NEPA also makes it clear that the Federal agency is responsible for the NEPA document including its content. This RMPA/EIS serves as the compliance document for NEPA prior to approval of statewide standards for public land health and guidelines for livestock grazing. Additional documentation of environmental effects maybe required during implementation.

The FLPMA directs BLM to coordinate inventory, planning and management activities for the public lands with management plans and programs of other Federal departments and agencies, along with the plans of the States and local governments to the extent consistent with the laws governing the administration of the public lands. All 33 counties in New Mexico and the State of New Mexico were invited to participate in the development of this document. Additionally pueblos and tribes were consulted as to how they wished to participate in the development of this document. As a result the State of New Mexico and 9 of the 33 counties decided they would like to participate. MOUs were developed which defined the roles of those participating. Although the counties participated in the process, the content of the EIS was governed by Federal laws consistent with FLPMA. Once a decision is made on this action further coordination with the State and counties will be required during implementation.

The laws specific to public land such as TGA, FLPMA and PRIA provide direction concerning livestock grazing management and existing property rights for public land management. It is clear in reading the TGA that management of livestock grazing on the public land does not create a property right, and that implementation of the Act shall not interfere with recognized valid existing property rights. As long as proper procedures are followed, including due process provided to current grazing permittees/lessees, the BLM may limit or terminate grazing for valid purposes.

With passage of the FLPMA, there is Congressional direction that the BLM decides the appropriate use of Federal public land under multiple use criteria, and the BLM is not bound to provide for all uses, or even a single use, on all lands. Congress provided through FLPMA for management of livestock grazing on the basis of multiple use and sustained yield. When prudent, the BLM can cancel or modify livestock grazing. However, FLPMA requires that if livestock grazing is canceled in whole or in part, payment for the adjusted value of the ranchers interest in range improvements that are no longer needed and a 2-year notice of cancellation of the permit or lease, except in emergencies, will be provided to the rancher. No further compensation is authorized by FLPMA for permit or lease modification or cancellation.

PRIA in Section 8 directs that when allotment management plans are developed the BLM shall do so in careful and considered consultation, cooperation and coordination with the lessees, permitees, and landowners involved, grazing advisory boards, and any State having lands within the area.

FEDERAL REGULATIONS

Section 1501.7 (a) of the CEQ regulations state as part of the scoping process the lead agency shall:

> ...(4) Allocate assignments for preparation of the environmental impact statement among the lead and cooperating agencies, with the lead agency retaining responsibility for the statement.

Section 1506.2 (c) states:

> Agencies shall cooperate with State and local agencies to the fullest extent possible to reduce duplication between NEPA and comparable State and local requirements, unless the agencies are specifically barred from doing so by some other law. Except for cases covered by paragraph (a) of this section, such cooperation shall to the fullest extent possible include joint environmental impact statements. In such cases one or more Federal agencies and one or more State or local agencies shall be joint lead agencies.

> Where State laws or local ordinances have environmental impact statement requirements in addition to but not in conflict with those in NEPA, Federal agencies shall cooperate in fulfilling these requirements as well as those of Federal laws so that one document will comply with all applicable laws.

Analysis

In developing this EIS, the BLM took into account as much as possible the ideas from the State and Cooperating Counties. The BLM, as the responsible Federal agency for the content of the entire statement, edited the State-provided analysis of Human Dimension impacts (including civil rights and property rights).

EXECUTIVE ORDERS

Executive Order 12630

Executive Order 12630 of March 15, 1988 Governmental Actions and Interference With Constitutionally Protected Property Rights states:

> By the authority vested in me as President by the Constitution and laws of the United States of America, and in order to ensure that government actions are undertaken on a well-reasoned basis with due regard for fiscal accountability, for the financial impact of the obligations imposed on the Federal government by the Just Compensation Clause of the Fifth Amendment, and for the Constitution, it is hereby ordered as follows:
>
> Section 1. Purpose. (a) The Fifth Amendment of the United States Constitution provides that private property shall not be taken for public use without just compensation. Government historically has used the formal exercise of the power of eminent domain, which provides orderly processes for paying just compensation, to acquire private property for public use. Recent Supreme Court decisions, however, in reaffirming the fundamental protection of private property rights provided by the Fifth Amendment and in assessing the nature of governmental actions that have an impact on constitutionally protected property rights, have also reaffirmed that governmental actions that do not formally invoke the condemnation power, including regulations, may result in a taking for which just compensation is required.
>
> (b) Responsible fiscal management and fundamental principles of good government require that government decision-makers evaluate carefully the effect of their administrative, regulatory, and legislative actions on constitutionally protected property rights, Executive departments and agencies should review their actions carefully to prevent unnecessary takings and should account in decision-making for those takings that are necessitated by statutory mandate.
>
> (c) The purpose of this Order is to assist Federal departments and agencies in undertaking such reviews and in proposing, planning, and implementing actions with due regard for the constitutional protections provided by the Fifth Amendment and to reduce the risk of undue or inadvertent burdens on the public fisc resulting from lawful governmental action. In furtherance of the purpose of this Order, the Attorney General shall, consistent with the principles stated herein and in consultation with the Executive departments or agencies promulgate Guidelines for the Evaluation of Risk and Avoidance of Unanticipated Takings to which each Executive department or agency shall refer in making the evaluations required by this Order or in otherwise taking any action that is subject of this Order. The Guidelines shall be promulgated no later than May 1, 1988, and shall be disseminated to all units of each Executive department and agency no later than July 1, 1988. The Attorney General shall, as necessary, update these guidelines to reflect fundamental changes in takings law occurring as a result of Supreme Court decisions.
>
> Section 2. *Definitions.* For the purpose of this Order: (a) "Policies that have takings implications" refers to Federal regulations, proposed Federal regulations, proposed

Federal legislation, comments on proposed Federal legislation, or other Federal policy statements that, if implemented or enacted, could effect a taking, such as rules and regulations that propose or implement licensing, permitting, or other condition requirements or limitations on private property use, or that require dedications or exactions from owners of private property. "Policies that have takings implications" does not include:
(1) Actions abolishing regulations discontinuing governmental programs, or modifying regulations in a manner that lessens interference with the use of private property;
(2) Actions taken with respect to properties held in trust by the United States or in preparation for or during treaty negotiations with foreign nations.
(3) Law enforcement actions involving seizure, for violations of law, of property for forfeiture or as evidence in criminal proceedings;
(4) Studies or similar efforts or planning activities;
(5) Communications between Federal agencies or departments and State or local land-use planning agencies regarding planned or proposed State or local actions regulating private property regardless of whether such communications are initiated by a Federal agency or department or are undertaken in response to an invitation by the State or local authority;
(6) The placement of military facilities or military activities involving the use of Federal property alone; or
(7) Any military or foreign affairs function (including procurement functions thereunder) but not including the U.S. Army Corps of Engineers civil works program.

(b) Private property refers to all property protected by the Just Compensation Clause of the Fifth Amendment.

(c) "Actions" refers to proposed Federal regulations, proposed Federal legislation, comments on proposed Federal legislation, application of Federal regulations to specific property, or Federal governmental actions physically invading or occupying private property, or other policy statements or actions related to Federal regulations or direct physical invasion or occupancy, but does not include:
(1) Actions in which the power of eminent domain is formally exercised;
(2) Actions taken with respect to properties held in trust by the United States or in preparation for or during treaty negotiations with foreign nations;
(3) Law enforcement actions involving seizure, for violations of law, of property for forfeiture or as evidence in criminal proceedings;
(4) Studies or similar efforts or planning activities;
(5) Communications between Federal agencies or departments and State or local land-use planning agencies regarding planned or proposed State or local actions regulating private property regardless of whether such communications are initiated by a Federal agency or department or are undertaken in response to an invitation by the State or local authority;
(6) The placement of military facilities or military activities involving the use of Federal property alone; or
(7) Any military or foreign affairs function (including procurement functions thereunder), but not including the U.S. Army Corps of Engineers civil works program.

Sec 3. General Principles. In formulating or implementing policies that have takings implications, each Executive department and agency shall be guided by the following general principles:

(a) Governmental officials should be sensitive to, anticipate, and account for, the obligations imposed by the Just Compensation Clause of the Fifth Amendment in planning and carrying out governmental actions so that they do not result in an imposition of unanticipated or undue additional burdens on the public fisc.
(b) Actions undertaken by governmental officials that result in a physical invasion or occupancy of private property, and regulations imposed on private property that

substantially affect its value or use may constitute a taking of property. Further, governmental action may amount to a taking even through the action results in less than a complete deprivation of all use or value, or of all separate and distinct interests in the same private property and even if the action constituting a taking is temporary in nature.
(c) Government officials whose actions are taken specifically for the purposes of protecting public health and safety are ordinarily given broader latitude by courts before their actions are considered to be takings. However, the mere assertion of a public health and safety purpose is insufficient to avoid a taking. Actions to which this Order applies asserted to be for the protection of public health and safety, therefor, should be undertaken only in response to real and substantial threats to public health and safety, be designed to advance significantly the health and safety purpose, and be no greater than is necessary to achieve the health and safety purpose.
(d) While normal governmental process do not ordinarily effect takings, undue delays in decision-making during which private property use if interfered with carry a risk of being held to be takings. Additionally, a delay in processing may increase significantly the size of compensation due if a taking is later found to have occurred.
(e) The Just Compensation Clause is self-actuating, requiring that compensation be paid whenever governmental action results in a taking of private property regardless of whether the underlying authority for the action contemplated a taking or authorized the payment of compensation. Accordingly, government actions that may have a significant impact on the use or value of private property should be scrutinized to avoid undue or unplanned burdens on the public fisc.

Sec 4. *Department and Agency Action*. In addition to the fundamental principles set forth in Section 3, Executive departments and agencies shall adhere, to the extent possible permitted by law, to the following criteria when implementing policies that have taking implications:
(a) When an Executive department or agency requires a private party to obtain a permit in order to undertake a specific use of or action with respect to private property, any conditions imposed on the granting of a permit shall:
(1) Serve the same purpose that would have been serve by a prohibition of the use or action; and
(2) Substantially advance that purpose;
(b) When a proposed action would place a restriction on a use of private property, the restriction imposed on the use shall not be disproportionate to the extent to which the use contributes to the overall problem that the restriction is imposed to redress.
(c) When a proposed action involves a permitting process or any other decision-making process that will interfere with, or otherwise prohibit, the use of private property pending the completion of the process, the duration of the process shall be kept to the minimum necessary.
(d) Before undertaking any proposed action regulating private property use for the protection of public health or safety, the Executive department or agency involved shall, in internal deliberative documents and any submissions to the Director of the Office of Management and Budget that are required:
(1) Identify clearly, with as much specificity as possible, the public health or safety risk created by the private property use that is the subject of the proposed action;
(2) Establish that such proposed action substantially advances the purpose of protecting public health and safety against the specifically identified risk;
(3) Establish to the extent possible that the restrictions imposed on the private property are not disproportionate to the extent to which the use contributes to the overall risk; and
(4) Estimate, to the extent possible, the potential cost to the government in the event that a court later determines that the action constituted a taking.

In instances in which there is an immediate threat to health and safety that constitutes an emergency requiring immediate response, this

analysis may be done upon completion of the emergency action.

Sec. 5. Executive Department and Agency Implementation. (a) The head of each Executive department and agency shall designate an official to be responsible for ensuring compliance with this Order with respect to the actions of that department or agency.

(b) Executive departments and agencies shall, to the extent permitted by law, identify the takings implications of proposed regulatory actions and address the merits of those actions in light of the identified takings implications, if any, in all required submissions made to the Office of Management and Budget. Significant takings implications should also be identified and discussed in notices of proposed rule-making and messages transmitting legislative proposals to the Congress, stating the departments' and agencies' conclusions on the takings issues.

(c) Executive departments and agencies shall identify each existing Federal rule and regulation against which a takings award has been made or against which a takings claim is pending including the amount of each claim or award. A "takings" award has been made or a "takings" claim pending if the award was made, or the pending claim brought, pursuant to the Just Compensation Clause of the Fifth Amendment. An itemized compilation of all such awards made in Fiscal Years 1985, 1986, and 1987 all of such pending claims shall be submitted to the Director, Office of Management and Budget, on or before May 16, 1988.

(d) Each Executive department and agency shall submit annually to the Director, Office of Management of Budget, and to the Attorney General an itemized compilation of all awards of just compensation entered against the United States for takings, including awards of interest as well as monies paid pursuant to the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 U.S.C. 4601.

(e)(1) The Director, Office of Management and Budget, and the Attorney General shall each, to the extent permitted by law, take action to ensure that the policies of the Executive departments and agencies are consistent with the principles, criteria, and requirements stated in Sections 1 through 5 of this Order, and the Office of Management and Budget shall take action to ensure that all takings awards levied against agencies are properly accounted for in agency budget submissions.

(2) In addition to the guidelines required by Section 1 of this Order, the Attorney General shall, in consultation with each Executive department and agency to which this Order applies, promulgate such supplemental guidelines as may be appropriate to the specific obligations of that department or agency.

Sec 6. *Judicial Review*. This Order is intended only to improve the internal management of the Executive branch and is not intended to create any right or benefit, substantive or procedural, enforceable at law by a party against the United States, its agencies, its officers, or any person.

Executive Order 12898

Executive Order 12898 was issued February 11, 1994. Section 1-1 Identifies Agency Responsibilities. It states:

> To the greatest extent practicable and permitted buy law, . . . each Federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories.

Section 2-2 identifies Federal agency responsibilities for federal programs as:

> Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

Executive Order 12291

Executive Order 12291 was issued February 17, 1981 to reduce the burdens of existing and future regulations, increase agency accountability for regulatory actions, provide for presidential oversight of the regulatory process, minimize duplication and conflict of regulations, and insure well-reasoned regulations.

Executive Order 12866

Executive Order 12866, issued September 30, 1993 to begin a program to reform and make more efficient the regulatory process. The objectives of the Executive Order was to enhance planning and coordination with respect to both new and existing regulations, to reaffirm the primacy of Federal agencies in the regulatory decision-making process; to restore the integrity and legitimacy of regulatory review and oversight; and to make the process more accessible and open to the public.

Executive Order 13045

Executive Order 13045 was issued April 21, 1997 to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and ensure that its policies, programs activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

Analysis

Executive Order 12630 of March 15, 1988 gives direction on Governmental Actions and Interference With Constitutionally Protected Property Rights.

Executive Order 12630 refers to Federal regulations, proposed Federal regulations, proposed Federal legislation, comments on proposed Federal legislation, or other Federal policy statements that, if implemented or enacted, could effect a taking, such as rules and regulations that propose or implement licensing, permitting, or other condition requirements or limitations on private property use, or that require dedications or exactions from owners of private property.

The TGA and FLPMA both provide for protection of valid existing property rights while also providing for management of livestock grazing on the public land. Whatever property rights any party may have are not directly affected or compromised by proper management of the Federal public land. Therefore, it is not necessary to have concerns about potential "takings" in the establishment of Rangeland Health Standards and Livestock Grazing Guidelines. Accordingly, a takings assessment under Executive Order 12630 at this level (EIS/RMP Amendment) is not necessary.

The BLM will identify lands not meeting the standard due to current grazing practices; then consultation, coordination and cooperation will begin with the livestock grazing permittee/lessee, landowners involved, RAC, the State of New Mexico, and interested public to identify practical means and measures to achieve resource management objectives including grazing guidelines. Emphasis will be given to selection of management practices that will minimize adverse impacts to low income or minority population as directed in Executive Order 12898 on Environmental Justice.

The actions analyzed in this EIS are not regulation or rules as defined in Section 1. (a) of Executive Order 12291 which states “Regulation” or “rule” means “an agency statement of general applicability and future effect designed to implement, interpret, or prescribe law or policy or describing the procedure or practice

requirements of an agency, but does not include..." The change in the grazing regulations (a regulatory change) was analyzed in the Reform '94 EIS completed by the Washington Office. The results of that analysis are contained in a document titled "Range Reform Small Entity Flexibility Analysis" dated March 23, 1994. During its preparation, the Small Business Administration was provided the opportunity to comment on the document. They found the document was adequate.

Executive Order 12866 also deals with the development of Federal Regulations. It does not apply to this document because the Proposed RMP Amendment/Final EIS is not a regulation.

Executive Order 13045 is concerned with environmental health and safety risks to children. Environmental health and safety risks are defined as "risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breath, the food we eat, the water we drink or use for recreation, the soil we live on, land the products we use or are exposed to)." Implementing the alternatives will reduce the risks to health and safety of children and no further work is required to be consistent with the Executive Order.

LAWS FOR THE STATE OF NEW MEXICO

State Law 72-2-9

New Mexico State Law 72-2-9. [Supervising apportionment of waters.] states:

> The state engineer shall have the supervision of the apportionment of water in the state according to the licenses issued by him and his predecessors and the adjudications of the courts.

State Wildlife Conservation Act

The State of New Mexico State Wildlife Conservation Act in Section 17-2-39 (A) provides that:

Species of wildlife indigenous to the state that may be found to be threatened or endangered should be managed to maintain and, to the extent possible, enhance the numbers within the carrying capacity of the habitat.

Section 17-2-40 sets out the procedures for the Director of the NMDGF to follow in the determination of listing State species and the management measures and requirements necessary for their survival. Further, Section 17-2-40-1 sets the procedures for the Director of the NMDGF to follow in the development of recovery plans for the State-listed species.

NMSA 4-37

The State of New Mexico has vested in County Government the authority to protect the health, safety and welfare of its citizens (NMSA 4-37 (1978):

> ...to provide for the safety, preserve the health, promote the prosperity and improve the morals, order and convenience...enact powers general police power and zoning...County ordinances are effective within the boundaries of the county, including private property owned land and land owned by the United States.

Analysis

Water quality management in New Mexico has both State and Federal aspects. The State, through the NMWQCC and New Mexico Environment Department (NMED), establishes standards for ground water, lakes, and streams or segments of streams, assesses the quality of these water bodies, adopts regulations, and takes actions to protect and maintain water quality. The State also coordinates with the U.S. Environmental Protection Agency in implementing the Federal Water Pollution Control Act (33 U.S.C. 1288), popularly known as the Clean Water Act (CWA) and other Federal acts which contain water quality protection provisions.

COUNTY ORDINANCES

Most of the "Cooperating Agency" Counties in this BLM/State NEPA EIS process have enacted ordinances that require coordinated environmental assessments with Federal agencies, with a special emphasis on socio-economic, and civil and property rights analyses from government proposed actions. Refer to Cooperating County ordinances entitled, "[name] County Environmental Planning and Review Ordinance." (These ordinances are referred to in NEPA as a "mini-NEPA.") As Cooperating Counties, the County mini-NEPAs are designed to reduce duplication

of efforts in the environmental analysis, (NEPA 40 CFR §1506.2).

Analysis

Where State of New Mexico laws and county ordinances require those governments to perform environmental impact documentation, CEQ directs, where possible, the Federal agencies NEPA documentation satisfy both requirements. As directed by FLPMA, where possible and practical, the BLM coordinates the Federal programs to be consistent with State and county programs.

BLM POLICY

The Vision Statement for BLM Environmental Justice Strategy states:

> . . . The Bureau is vitally aware of the social and economic context within which resource and environmental decisions are made and the potential for inequitable distribution of the benefits and costs of these decisions. Every effort will be made to solicit the full participation of minority and low income groups affected by our land and resource decisions and by our environmental and ecological planning, in our collaborative decision making processes. The Bureau and its managers will provide opportunities the information necessary for involvement in decisions in an effective and timely manner. We will take an active approach to outreach in and around our communities and we are dedicated to the service of all communities, equitably and fairly.

Table 4-25 was developed by Region 8 of EPA to assist agencies in considering environmental justice requirements.

The BLM policy (BLM Manual 6840) instructs State Directors to develop policies to assist the State Government in achieving their management objectives of State-listed species. State-listed species, as other special status species, will be considered in all land use plans and environmental assessments and will be given priority for protection through the identification of their habitat as potential Areas of Critical Environmental Concern or other Special Management Areas.

It is BLM policy (BLM Manual 7240) to protect, maintain, restore, and/or enhance the quality of water on public land so that its utility for other dependent ecosystems, including present and/or desired human environments, will be maintained equal to or above legal water quality criteria. The water quality limits are those defined by the most stringent applicable laws and regulations. It is also policy to inventory, monitor and evaluate natural and developed water systems to determine existing conditions, make cause/effect determinations or resource activities on water quality, and recommend appropriate actions.

Analysis:

The BLM and various agencies in New Mexico have developed Memorandums of Understanding (MOU's) to help carry out BLM policies and State requirements. The MOU's are summarized here.

Following the provisions of the CWA and State authorities, the NMED and BLM have an MOU dated March 2, 1992, which designates BLM as a water quality management agency on public land and gives BLM the responsibility for the control and reduction of non-point source pollution on this land.

In 1990, a MOU between the NMDGF and the BLM recognized that the NMDGF is the primary agency responsible for management, protection, regulation and propagation of wildlife on public land. It further stipulates and agrees that every provision in the MOU is subject to the laws of the State of New Mexico, the laws of the United States, and to each agency's delegated authority.

Thus, the BLM promotes the State of New Mexico, State Wildlife Conservation Act through policy and an MOU with the NMDGF. The BLM recognizes State listed species, and they are given priority for protection, the same as Federally-listed species.

MITIGATION MEASURES

After determination of site-specific standards for public land health, the BLM must determine the activities that it believes are contributing to the lack of achieving the standard. At that time, BLM would determine probable reasons for not meeting the standards. When current livestock grazing practices are determined to be one of the reasons for not

TABLE 4-25 ENVIRONMENTAL JUSTICE . . . CONSIDER THIS	
DEMOGRAPHICS	**DISPROPORTIONATE IMPACT**
● EO 12898 directs federal agencies to focus attention on the human health and environmental conditions in minority communities and low-income communities. ● What's a community - A group of individuals living in geographic proximity to one another or a set of dispersed individuals (such as migrant workers) where either type of group experiences common conditions of environmental exposure or effect. ● Low-income populations should be identified with the annual statistical poverty thresholds from the Bureau of the Census: Current Population Reports, Series P-60 on Income and Poverty. ● Minority populations are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.	● whether there is or will be an impact on the natural or physical environment that significantly (as employed by NEPA) and adversely affects a minority or low-income population, or Indian tribe. Such effects may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment; and ● whether environmental effects are significant and are or may be having an adverse impact on minority or low-income populations or Indian tribes that appreciably exceeds or is likely to appreciably exceed those on the general population or other comparison group; and ● whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.
STAKEHOLDER INVOLVEMENT	**BENEFITS AND BURDENS**
EO 12898 directs federal agencies to ● allow all populations a meaningful[1] opportunity to participate in the development of, compliance with, and enforcement of Federal laws, regulations and policies affecting human health or the environment, and ● give minority communities and low-income communities greater opportunities[2] for participation in, and access to public information on matters relating to human health and the environment.	● there is no unfairness in the distribution of the benefits and burdens associated with the implementation of Federal laws, regulations, and policies, and ● all segments of the society regardless of race, color, national origin, or income share fairly in receiving the benefits from environmental protection and in shouldering the burdens of implementation of these policies.

(...continued)

Must meet the criteria of top boxes to qualify as an Environmental Justice issue. If only one of the top box criteria are met, then there is no Environmental Justice issue.

Source: EPA Region VIII - A Handout from the Environmental Justice Workshop in Albuquerque NM on September 30, 1999.

[1] Meaningful means the ability to influence a decision.

[2] Greater than what they have had in the past.

meeting the standard, consultation, cooperation and coordination would begin with the livestock grazing permittee/lessee, landowners involved, RAC, the State of New Mexico, and interested public. In consultation with affected interests, the BLM would then develop a plan to adjust these activities to insure the standard is achieved. For example, in grazing, consultation, coordination and cooperation with the permittee/lessee and other affected interests would identify how to adjust livestock grazing practices to be in concert with the rangeland health standards and livestock grazing guidelines. This process would include discussion of opportunities to mitigate adverse impacts to the various parties.

Executive Order 12898, Interior policies and BLM policies establish direction for BLM to mitigate for environmental justice. To meet the environmental justice requirements, as the program develops, the BLM in consultation with the counties will monitor demographics, disproportionate impacts, stakeholder involvement, and benefits and burdens.

During the planning process, when private property right owners believe their rights are being impacted, they can request a Takings Implication Assessment (TIA) under Executive Order 12630.

It has been recommended by the Counties that as a mitigating measure, BLM apply the following tests to determine if there is a potential for a taking of private property.

> 1. What property interest will be or are likely to be affected by the proposed action;
> 2. The likely degree of economic impact on identified property and economic interests;
> 3. Interference with reasonable investment backed expectations;
> 4. The character and present use of the property, the anticipated duration of the proposed or intended action, and variations in State law;
> 5. Whether the proposed policy or action carries benefits to the private property owner that offset or otherwise mitigate the adverse economic impact of the proposed policy or action; and,
> 6. Whether alternative actions are available that would achieve underlining lawful governmental objectives and would have a lesser economic impact.

Possible Mitigation Measures

A full spectrum of possible mitigation was raised in discussions BLM had with the joint lead (State of New Mexico) and cooperators (nine cooperating counties) for the EIS. This full spectrum is discussed here to give the reader an understanding what that range of mitigation is. Some of the listed mitigation measures are feasible or likely to be used while others are not. The feasibility of each is discussed in general terms below. Possible mitigation measures include:

1. Reducing the scope of the project - This would entail changing the project to deal specifically with the area where current conditions and grazing practices are not acceptable instead of a larger area within the allotment or within a pasture. While this approach might be more expensive to implement, it might lessen impact to the permittee/lessee. This approach would be highly feasible; however, it would depend on the specific situation.

2. Delay impacts - This would entail giving the permittee/lessee notice before the actual change is made to the grazing operation so the permittee/lessee has time to plan and make the necessary measures to lessen the impact anticipated. This mitigation is feasible and mandated by FLPMA and the grazing regulations for some situations; however, for other situations the mitigation may not feasible.

The grazing regulations provide for such mitigation under specific circumstances.

> 43 CFR §4110.4-2 (b) When public lands are disposed of or devoted to a public purpose which precludes livestock grazing, the permittees and lessees shall be given 2 years' prior notification except in cases of emergency (national defense requirements in time of war, natural disasters, national emergency needs, etc.) before their grazing permit or grazing lease and grazing preference may be canceled. A permittee or lessee may unconditionally wave the 2-year prior notification. Such a waiver shall not prejudice the permittee's or lessee's right to

> reasonable compensation for, but not to exceed the fair market value of his or her interest in authorized permanent range improvements located on these public lands (see §4120.3-6).

When the BLM is not proposing to cancel the preference or when the proposed action is not excluding livestock use, the 2 year delay is not mandated by regulation, 43 CFR §4180.2 (c) would apply. It states:

> The authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year upon determining that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines that are made effective under this section. Appropriate action means implementing actions pursuant to subparts 4110, 4120, 4130, and 4160 of this part that will result in significant progress toward fulfillment of the standards and significant progress toward conformance with the guidelines. Practices and activities subject to standards and guidelines include the development of grazing-related portions of activity plans, establishment of terms and conditions of permits, leases and other grazing authorizations, and range improvement activities such as vegetation manipulation, fence construction and development of water. meeting the standard, consultation, cooperation and coordination would begin with the livestock grazing permittee/lessee, landowners involved, RAC, the State

3. Take actions so impacts occur over a period of time - This would entail dealing with making changes to the grazing operation over time to spread out the impact surge to the permittee/lessee. For example, treat one pasture at a time instead of all pastures where brush treatments are called for to help meet the standard for public land health. This approach would be moderately to highly feasible based on the specific situation. If significant progress toward meeting goals and objectives on the allotment is not being made as a whole, the BLM's authorized officer will follow 43 CFR §4180.2 c (see No. 2).

4. Take no action - This would entail not taking any action to improve the public land health by implementing grazing guidelines as a way of lessening impacts to the permittee/lessee. This approach would not be feasible as it conflicts with the grazing regulations (43 CFR 4180.2 c) (see No. 2) which mandate that action will be taken by the next grazing season. Although no action to resolve grazing conflict would not be possible taking no action on certain proposed management tools or practices may be feasible.

5. Compensate for loss of range improvement values - This would entail the permittee/lessee being paid a reasonable compensation for the adjusted value of the improvements owned by the permittee/lessee, not to exceed fair market value. This approach would seem to be highly feasible as it is provided for now in the law.

The FLPMA states in Sec 402 (g):

> Whenever a permit or lease for grazing domestic livestock is canceled in whole or in part, in order to devote the lands covered by the permit or lease to another public purpose, including disposal, the permittee or lessee shall receive from the United States a reasonable compensation for the adjusted value, to be determined by the Secretary concerned, of his interest in authorized permanent improvements placed or constructed by the permittee or lessee on lands covered by such permit or lease, but not to exceed the fair market value of the terminated portion of the permittee's or lessee's interest therein. Except in cases of emergency, no permit or lease shall be canceled under this subsection without two year' prior notification.

6. Compensate for loss of ranch value - This would entail the permittee/lessee being paid the fair market value for loss of ranch value. At this time this approach would not be feasible, as the TGA declares a grazing permit on the Federal range to be a privilege not a right. The Fifth Amendment does not require the government to pay for loss of value added to the

permittees/lessees private lands used in combination with the government permit land, and the TGA does not authorize compensation for such added value. The argument that the increment of value added to a private ranch by public land grazing permit is a compensable property interest was considered and rejected by the United States Supreme Court in United States v. Fuller, 409 U.S. 488 (1973).

Implementation and Mitigation Procedures

In implementation of the standards for public land health the BLM will:

> consult, cooperate and coordinate with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans;
>
> seek to attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
>
> seek to achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
>
> utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking.

Following the direction of FLPMA, BLM will consult, cooperate and coordinate, as appropriate, with the following State agencies/commissions:

> State Engineer
> Environmental Department
> Department of Agriculture
> Energy, Minerals and Natural Resources Department
> Department of Tourism
> New Mexico Game and Fish Department
> State Land Office
> Department of Cultural Affairs
> Oil and Gas Commission
> New Mexico Oil Conservation Commission
> Interstate Stream Commission
> Water Quality Control Commission
> Soil and Water Conservation Commission
> New Mexico Game and Fish Commission

and

> Local governments, as appropriate

to:

> insure that BLM's programs are consistent with State versus Federal jurisdictions;
>
> provide for timely advice with respect to public land matters from State government officials, both elected and appointed;
>
> provide early notification to, and solicit the views of State land management agencies of any action which may have significant impacts upon the agency;
>
> provide for compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans;
>
> insure that BLM's inventory, planning, and management activities are in concert with State and local agency plans to the maximum extent consistent with the Federal laws and the purposes of the Federal laws governing the administration of the public lands;
>
> assure that consideration is given to State plans that are germane and to the extent practical, resolve inconsistencies between Federal and non-Federal Government plans in a timely manner; and
>
> insure coordination of inventory and assessment of resource data.

by taking the following actions:

- Notify the State agencies of the work schedule to determine which lands meet the standards.

- Request the State agencies provide data they have that would be germane in determining which lands meet the standards.
- After the inventory or assessment, BLM will notify the State agencies of the areas that meet the standards.
- For areas that don't meet the standard, BLM will invite the State agencies to participate in determinations of why the lands do not meet the standards.
- If current livestock grazing practices are determined to be a cause, the BLM would include the State agencies in consultation, cooperation and coordination procedures.

The BLM would request that the State agencies monitor the following indicator data and keep BLM current:

- Water quality
- Water quantity
- Air quality
- Wildlife populations
- Watershed conditions

The BLM would coordinate with the Counties on monitoring and mitigation. To insure coordination with the County government in implementation of the program, the BLM would do the following:

- Notify the County of the work schedule to determine which lands meet the standards.
- Request County and local governments provide data they have that would be germane in determining which lands meet the standards.
- After the inventory or assessment, BLM will notify the County of the areas that meet the standards.
- For areas that don't meet the standard, BLM will invite the County to participate in determinations of why the lands do not meet the standards.
- If current livestock grazing practices are determined to be a cause, the BLM would include the County in consultation, cooperation and coordination procedures.

The BLM would request that the County monitor indicator data for the Sustainable Communities and Human Dimension Standard and keep BLM current.

Appropriate social, cultural, and economic indicators, could include, but not limited to such standard sociological and anthropological measurable indicators such as:

- County or local government and schools
  - programs
  - roads/transportation
  - fiscal/financial
- Population and demographic characteristics
  - population changes
  - demographic changes
- Community stability
- Family stability
  - Divorce rates
  - Unemployment
  - Personal income
- Values, attitudes, and beliefs
- Customs and cultures
- Distributional effects

When BLM has feasible mitigation measures that are fiscally prudent and reasonably available to BLM and are in concert with BLM Congressionally granted authorities, it will incorporate the mitigation measures into new activity plans and guideline implementation.

For each of the alternatives prepared in the NEPA process at the activity level or project level, there is a potential for adverse effects. In the NEPA process mitigation measures and monitoring techniques would be developed to:

a. State the adverse effects that possibly could be avoided or substantially lessened.
b. If several measures are available, discuss each.
c. Describe potential monitoring techniques.

The Decision Record would:

a. Select mitigation measures and the basis for selecting the particular measure.
b. Monitoring techniques that are prescribed.
c. Identify roles and responsibilities of the parties.

CUMULATIVE EFFECTS

The regulations for implementing NEPA require Federal agencies to analyze and disclose cumulative effects that result from incremental impact of an action

"*when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR §1508.7)*

The Proposed Action and alternatives are broad in scope. Implementation of the alternatives would consist of many actions, including establishing site-specific standards for land condition that BLM will manage for, inventorying the land, and implementing livestock grazing guidelines to assist in meeting the standards.

The standards and guidelines are general in nature and affect public land statewide. As a result, this EIS is programmatic, addressing environmental consequences that are correspondingly wide in scope. Furthermore, neither the Proposed Action nor the alternatives would be implemented in a vacuum.

The BLM rangeland management policies and public land conditions are not the only factors that affect the public land interests and users, the New Mexico livestock industry, rural communities and individual ranchers. Implementation would be interwoven with many other actions, events, and trends taking place at local levels. Many of the trends that are taking place at the State level are expected to continue. For example, many of the ranches are valued based on long-term profitably characteristics rather than short-term cash flow. However, financing is now based on annual cash flow as required by the Federal Deposit Insurance Corporation. Other important factors in determining cumulative impacts are trends in population, growth, changing demographics, lifestyles, property values, the average price received for agricultural products over a 10 year period and personal financial situations. Many rural communities will continue to transform from rural economies to urban economies.

Population growth in many rural communities, while contributing to economic growth and diversification, will continue to diminish the relative importance of agriculture in those communities. But, economic diversification also offers more chances to earn off-ranch income and help families maintain their ranches.

Communities that continue to lose population and whose economies are in decline may be further strained by decreases in short-term livestock production. For example, the impacts of the loss of mining jobs in Hidalgo and Luna counties could be further impacted by the loss of ranching jobs in those counties.

Land use changes such as increased recreation use and subdivision of privately-owned lands, are both a cause and a result of trends in agriculture. Economically marginal ranches might be encouraged to sell to developers where the demand for rural homesites is increasing. As a result, agricultural production would further decline in such areas. Increased outfitter and guide activities, which encourage more recreational use of rural areas may offer more income earning potential for ranch families. However, these are options that are voluntarily rather than enforced by Federal agencies. As these changes are voluntarily adopted, the communities will drift further away from the agricultural base.

Demographic and land use changes may increase or decrease a community's tax base. Where economies are stable or growing, the tax base will likely be stable or increase. Where populations continue to decline, the tax revenues are expected to decline.

In the short-term, communities' with expanding tax bases would not be affected to the degree that counties with decreasing tax bases would be. Livestock grazing reductions may compound the loss in tax base in some counties with decreasing tax bases.

In the long-term, the communities' tax base would benefit as the health of the land improves. As the health of the land improves, increased livestock production, improved wildlife habitat and increased recreational opportunities would improve the tax and revenue base. As the land improves, the public would additionally benefit from improved surface water quality and groundwater recharge, soil retention and stability, decreased soil erosion and surface water runoff, more productive wildlife habitat, increased hunter and non-consumptive wildlife user satisfaction.

At the public land level, a number of trends can be expected to continue. Additional use of the public

land for recreation is expected. It can also be projected that, over time, management adjustments will be necessary to incorporate the direction of regulation requirements.

Implementation of environmental laws such as FLPMA, CWA and ESA is expected to affect the livestock industry, rural communities and the individual ranchers. As these laws are implemented by various Federal agencies, adjustments in livestock grazing practices may be necessary. For example, best management practices for livestock grazing, prompted by the need to comply with the CWA, are being implemented in New Mexico and may lead to changes in grazing practices.

Protection and recovery of Federally-listed species and their habitats are likely to change the way livestock grazing is managed on some Federal land allotments. An example would be the Southwestern Willow Flycatcher. Along with BLM, the Bureau of Reclamation and U.S. Forest Service have applied specific grazing practices to protect the flycatcher habitat during the spring-summer breeding and nesting season. Future activities designed to avert habitat loss and endangered species listings in the long-term might help sustain livestock production on public land.

The future of rangeland vegetation cannot be predicted by considering changes in livestock grazing management alone. Livestock grazing on public land is not the only factor that affects rangeland vegetation. Climate or weather patterns, recreation, wildlife use, management practices on adjoining land, the increase in unpalatable trees and the introduction and spread of alien weeds are also key considerations. Additionally past and current litigation is ongoing and continues to be a factor adding risk and uncertainty to the family ranching operations.

IRREVERSIBLE AND IRRETRIEVABLE

The healthy and viable ranching operations have an ability to respond to changing management factors. However, there is a limit to how much change can be accepted and the ranch operation maintained. If ranching operations go out of business, there may be no opportunity to return. The reason for this is that the equipment and infrastructure may be lost and too expensive to acquire again. To further complicate the return to business, are the tax requirements. After paying the capital gains taxes that are due upon selling an livestock operation, there may not be enough capital to buy the livestock again.

Another factor to be considered is that the livestock operations depend on skills that have been developed and taught from generation to generation. Once a generation is skipped, the skills are often lost in the family. Thus, unless the ranching skills, traditions and customs are maintained they will be lost to the individual, family, and community forever.

Chapter 5

CHAPTER 5
CONSULTATION AND COORDINATION

In September 1995, the Statewide Resource Advisory Council (RAC) was formed to begin work with BLM and the State of New Mexico in the development of Standards for Public Land Health and Guidelines for Livestock Grazing Management in New Mexico. The RAC met numerous times, with all meetings open to the public to develop draft standard and guidelines. Following public comments on the draft standards and guidelines mailed out to over 3,000 people in May 1996, the RAC revised the standards and guidelines. This revision became the proposed action in the Draft RMPA/EIS. Input from a broad spectrum of the public including academicians, ranchers, environmentalists, elected officials, and private citizens made comments during the comment period. This was important in the development of the proposal. Members of the RAC who developed the Proposed Action (RAC Alternative) described and analyzed in the Draft RMPA/EIS document are listed in Table 5-1.

The Resource Advisory Council consists of 15 members whose representation is balanced equally among the following three general interests:

- 1) grazing, mining, timber, off-highway vehicle and developed recreation interests
- 2) environmental organizations, archaeological and historic, and wild horse and burro interests
- 3) state and local government, Indian tribes, natural science, academicians and the public at large

On January 31, 1996 the NEPA/RMP process was initiated with a Notice of Intent published in the *Federal Register*. This notice requested public comments on the proposal to prepare an environmental document and to modify decisions in all New Mexico BLM RMPs. On May 27, 1996, a second Notice of Intent announced a total of 16 public meetings across the State to receive comments on the draft standards and guidelines that had been mailed out to over 3,000 people. The Notice of Intent also stated that written comments would be taken and announced that the comment period would close on June 30, 1996.

Nearly 300 people signed in as attending the public comment meetings. Public meetings were held in Deming, Lordsburg, Silver City, Las Cruces, Alamogordo, Roswell, Glencoe, Carlsbad, Socorro, Truth or Consequences, Albuquerque, Grants, Gallup, Santa Fe, and Taos, New Mexico; and Antonito, Colorado. Both BLM and RAC members attended the comment meetings to receive comments on the draft standards and guidelines. A total of 276 written comments were received during the comment period.

The RAC had several meetings following the close of the comment period and they revised the draft standards and guidelines into the Proposed Action presented in Chapter 2 of the Draft RMPA/EIS document.

In September 1996, a BLM Team (list of preparers) was selected, as listed in Table 5-2. Each Field Office provided a contact for data and other information. Those contacts are shown in Table 5-3.

The State of New Mexico requested to be a joint lead for this project, resulting in a Memorandum of Understanding between BLM and the State. The State team is listed in Table 5-4.

In 1997, ten RAC members' terms expired. Of the ten, two members were reappointed and eight new members were appointed. Table 5-5 identifies is the New Mexico RAC which was announced on August 20, 1997.

Table 5-6 identifies the New Mexico RAC which was announced on April 1, 1999. These RAC members made changes to the Proposed Action (RAC Alternative) based on public comments received by BLM during the 90-day comment period on the Draft RMPA/EIS document. The modified RAC Alternative is analyzed in this Proposed RMPA/Final EIS.

Table 5-7 identifies the present New Mexico RAC members.

Table 5-1 NEW MEXICO RESOURCE ADVISORY COUNCIL 9-95 THROUGH 8-97		
NAME	**LOCATION**	**INTEREST**
Nancy Brantley	Carlsbad	3
Celestino Gachupin	Zia Pueblo	3
Sid Goodloe	Capitan	1
Fred Gross Jr.	White Rock	2
Shannon Horst	Albuquerque	2
Pete Aguilar* Kenneth Heil	Santa Fe Farmington	3 3
David Kincaid	Pinon	1
Ruth Musgrave	Albuquerque	3
Frank Nordstrom	Aztec	2
Joseph Quintina	Taos	1
Sanford Schemnitz	Las Cruces	2
Buddy Shaw	Farmington	1
Alexander Thal	Silver City	3
Marvin Lee Watts	Carlsbad	1
Steve West	Carlsbad	2

Source: BLM Resource Advisory Council records.

Notes: *Pete Aguilar of Santa Fe was a member of the RAC from September 1995 until August 1996 when his term expired. He was replaced by Kenneth Heil.

Table 5-2 BLM PLANNING AND NEPA TEAM MEMBERS		
NAME	**TEAM TITLE**	**OFFICE**
J.W. Whitney	Project Manager	New Mexico State Office
Mark Blakeslee	Asst. Project Manager	New Mexico State Office
Robert Alexander	Technical Coordinator	New Mexico State Office
Roger Cumpian	Writer - Livestock	Socorro Field Office
Mike Howard	Writer - Vegetation, T&E Species	Las Cruces Field Office
Jerry Wall	Writer - Soil, Water, Air	Albuquerque Field Office
Rand French	Writer - Wildlife	Roswell Field Office
Kathy Walter	Writer - Recreation, Special Areas	Rio Puerco Field Office
Jackie Neckels	Writer - Realty, Land Use	Farmington Field Office
Brenda Wilkinson	Writer - Cultural, Historic	Socorro Field Office
Gary Stephens	Writer - Minerals, Geology	New Mexico State Office
Don Boyer	Writer - Editor	Roswell Field Office
Jeanette Pranzo	Reviewer - Economic	Colorado State Office
Roberto Costales	Reviewer - Social	Colorado State Office
Veronica Maldonado	Staff Assistant	New Mexico State Office
Rena Gutierrez (Final Only)	Writer-Editor (Responses to Comments)	Las Cruces Field Office

Table 5-3 BLM CONTACTS FOR DATA AND OTHER INFORMATION	
NAME	**OFFICE**
Sam DesGeorges	Taos Field Office
Steve Fischer	Albuquerque Field Office
Lisa Phillips	Las Cruces Field Office
Steve Daly	Carlsbad Field Office
Mark Matthews	Socorro Field Office
Tom Phillips	Las Cruces Field Office
Ray Sanchez	Farmington Field Office
John Spain	Roswell Field Office

Table 5-4 STATE PLANNING AND NEPA TEAM MEMBERS	
NAME	**AREA OF CONTRIBUTION**
Cecilia Abeyta	Project Manager for State.
John Fowler	Social, Economics, Livestock
G.B. Oliver	Social, Economics
Pat Quintana	Social, Economics, Custom, Culture, Historic
Alex Thal	Social, Economics, Custom, Culture, Historic
David Sanchez	Livestock
Jay Groseclose	Soil, Water, Air
Greg Fitch	Soil, Water, Air, Land Use, Minerals, Geology, Vegetation
John Bokich	Land Use, Wildlife, Minerals, Geology
Chuck Moran	Land Use, Minerals, Geology
Ron White	Wildlife, Recreation

In addition to the BLM and State Planning Team Allan Vesely from the Bureau of Indian Affairs Eastern Navajo Agency was also a team member. Allan's Area of Contribution was Native American Interest.

Table 5-5 NEW MEXICO RESOURCE ADVISORY COUNCIL 8-97 THROUGH 12-98		
NAME	**LOCATION**	**INTEREST**
Danny Charlie*	Kirtland	3
Nancy Clopton*	Hachita	1
Celestino Gachupin	Zia Pueblo	3
Gregory Green*	Santa Fe	2
Kenneth Heil**	Farmington	3
Phillenore Howard*	Santa Fe	2
Dan Lopez*	Albuquerque	3
Bob Nordstrum*	Albuquerque	2
Joseph Quintina	Taos	1
Ronnie Rardin*	Alamogordo	3
Joe Romero*	Velarde	1
Sanford Schemnitz	Las Cruces	2
Buddy Shaw	Farmington	1
Marvin Lee Watts**	Carlsbad	1
Steve West	Carlsbad	2

Notes: *New Appointments, ** Reappointments
From January 1, 1999 until April 1, 1999 no new RAC members had been appointed.

Table 5-6 NEW MEXICO RESOURCE ADVISORY COUNCIL 4-99 THROUGH 8-99		
NAME	**LOCATION**	**INTEREST**
Randolph Barnhouse*	Gallup	3
Anthony Benson*	Taos	1
Bennett Brown*	Animas	2
Danny Charlie	Kirtland	3
Nancy Clopton	Hachita	1
Gregory Green	Santa Fe	2
Kenneth Heil	Farmington	3
Phillenore Howard	Santa Fe	2
Barbara Johnson*	Santa Fe	2
Philip Kennicott*	Sandia Park	1
Dan Lopez	Albuquerque	3
Bob Nordstrum	Albuquerque	2
Roger Pattison	Clovis	1
Joe Romero	Velarde	1
Richard Zierlien*	Alamogordo	3

Notes: *New Appointments, appointed 4-1-99

Table 5-7 NEW MEXICO RESOURCE ADVISORY COUNCIL 9-99		
NAME	**LOCATION**	**INTEREST**
Randolph Barnhouse	Gallup	3
Anthony Benson	Taos	1
Bennett Brown	Animas	2
Danny Charlie	Kirtland	3
Gregory Green	Santa Fe	2
Kenneth Heil	Farmington	3
Michael Koranda*	Hurley	1
Phillenore Howard	Santa Fe	2
Barbara Johnson	Santa Fe	2
Philip Kennicott**	Sandia Park	1
Bob Nordstrum	Albuquerque	2
Roger Pattison	Clovis	1
Charles Pergler*	Los Alamos	3
Patrick Torres*	Santa Fe	1
Richard Zierlien**	Alamogordo	3

Notes: *New Appointments, appointed ** Reappointments

COOPERATORS

Nine New Mexico Counties requested to be cooperators for this project resulting in a Memorandum Of Understanding with the counties. The cooperating counties are Catron, Chaves, Eddy, Grant, Hidalgo, Lincoln, Luna, Otero, and Sierra. In addition, the Navajo Nation requested to be a cooperator for this project. A Memorandum Of Understanding for cooperator status with the Navajo Nation has been prepared but has not been signed to date.

CONSULTATION

Consultation with the United States Fish and Wildlife Service (USFWS) is required prior to initiation of any project by BLM that may affect any Federally-listed species or its habitat. Conferencing with USFWS will occur on potential effects to species proposed for Federal listing. Consultation is required by Section 7 of the Endangered Species Act of 1973. Informal consultation with USFWS began on October 23, 1996 (see Appendix C-1). The consultation process will be completed prior to finishing the Record of Decision for the RMPA.

CONSISTENCY WITH OTHER PLANS

At this time there are no known inconsistencies between any of the alternatives and any officially approved and adopted resource-related plans of other Federal agencies, state and local governments or Indian tribes. Coordination and consultation will continue throughout the planning process.

DISTRIBUTION OF THE DRAFT RMPA/DRAFT EIS

The Draft RMPA/EIS was available on the New Mexico BLM web page at the following web address: www.nm.blm.gov

Below is a partial listing of various Federal, State and local agencies organizations, Indian tribes and individuals to which both the Draft RMPA/EIS and Proposed RMPA/Final EIS were sent:

Federal Agencies

Department of Agriculture
- U.S. Forest Service
- Natural Resources Conservation Service

Department of Energy
- Office of NEPA Oversight

Department of the Interior
- Bureau of Indian Affairs
  - Chinle Agency
  - Southern Pueblos Agency
  - Eastern Navajo Agency
- Bureau of Mines
- Bureau of Reclamation
- Office of the Secretary
- National Park Service
- Fish and Wildlife Service

Environmental Protection Agency

State Agencies

Department of Agriculture
Department of Economic Development
Department of Game & Fish
Department of Tourism
Environmental Department
Energy, Minerals & Natural Resources Department
Governor's Office
Interstate Stream Commission
Office of Cultural Affairs
State Land Office

County Offices

County Commissions
Bernalillo
Catron
Chaves
Cibola
Colfax
Curry
DeBaca
Dona Ana
Eddy
Grant
Guadalupe
Harding
Hidalgo
Lea
Lincoln
Los Alamos
Luna
McKinley
Mora
Otero
Quay
Rio Arriba
Roosevelt
Sandoval
San Juan
San Miguel
Santa Fe
Sierra
Socorro
Taos
Torrance
Union
Valencia

City Offices

Alamogordo
Anthony
Artesia
Bayard
Carlsbad
Carrizozo
Central
Clovis
Deming
Eunice
Farmington
Fort Sumner
Gallup
Grants
Hurley
Jal
Lordsburg
Lovington
Magdalena
Mesilla
Reserve
Roswell
Santa Rosa

Silver City
Socorro
Tatum
Tucumcari
Tularosa

Tribal/Pueblo Groups

Acoma Pueblo
Isleta Pueblo
Jicarilla Apache Tribe
Laguna Pueblo
Mescalero Apache Tribe
Navajo Nation
Navajo Tribal Council
Pojoaque Pueblo
San Juan Pueblo
San Felipe Pueblo
San Ildefonso Pueblo
Santa Clara Pueblo
Santa Ana Pueblo
Taos Pueblo
Zia Pueblo
Zuni Pueblo

Other Groups

Albuquerque Production Credit Association
Albuquerque Wildlife Federation
Black Range Resource Conservation & Development, Inc.
Center for Wildlife Law
Coalition of Arizona/New Mexico Counties
Committee of Wilderness Supporters, Inc.
Concerned Citizens del Norte
Continental Divide Trail Society
Deming-Luna County Chamber of Commerce
Dona Ana County Associated Sportsmen, Inc.
El Paso Group of Sierra Club
Forest Guardians
Lighthawk
National Audubon Society
National Wildlife Federation
National Wildlife Federation
Natural Resources Defense Council
New Mexico State University
New Mexico Cattle Growers' Association
New Mexico Farm and Livestock Bureau
New Mexico Public Lands Council, Inc.
New Mexico Natural History Institute
New Mexico Land Use Alliance
New Mexico Wilderness Study Committee
New Mexico Woolgrowers Association
New Mexico Oil and Gas Association
Northern Wilderness Watch
Northern New Mexico Stockman Association
People for the West
Public Lands Action Network
Randal Davey Audubon Center
San Juan Basin Livestock Association
Sangre de Cristo Audubon Society
Santa Fe Group Sierra Club
Sierra Club -Rio Grande Chapter
Southeastern New Mexico Grazing Association
Southern New Mexico Group Sierra Club
Southwest Environmental Center
Southwest Consolidated Sportsmen
Sunland Brittany Club
Sunwest Bank
Texaco Exploration
Tri-State Navajo Extension Service
University of New Mexico Mountaineering Club
Washington Public Land Coordinator
Wilderness Society
Wildlife Management Institute
Wildlife Legislative Council
Yates Petroleum Corp.

Soil and Water Conservation Districts (S&WCD)

Border S&WCD
Caballo S&WCD
Canadian River S&WCD
Carlsbad S&WCD
Carrizozo S&WCD
Central Curry S&WCD
Central Valley S&WCD
Chaves S&WCD
Ciudad S&WCD
Claunch-Pinto S&WCD
Colfax S&WCD
Coronado S&WCD
Cuba S&WCD
DeBaca S&WCD
Deming S&WCD
East Rio Arriba S&WCD
East Torrance S&WCD
Edgewood S&WCD
Grant S&WCD
Guadalupe S&WCD
Hidalgo S&WCD
Hagerman-Dexter S&WCD
La Union S&WCD
Lava S&WCD
Lea S&WCD

McKinley S&WCD
Mesa S&WCD
Mora-Wagon Mound S&WCD
Northeastern S&WCD
Otero S&WCD
Penasco S&WCD
Quemado S&WCD
Roosevelt S&WCD
Salado S&WCD
San Juan S&WCD
San Francisco S&WCD
Santa Fe-Pojoaque S&WCD
Sierra S&WCD
Socorro S&WCD
Southwest Quay S&WCD
Taos S&WCD
Tierra y Montes S&WCD
Upper Chama S&WCD
Upper Hondo S&WCD
Ute Creek S&WCD
Valencia S&WCD
Western Mora S&WCD

Ranch Operators
Those permittees/lessees who signed in at a scoping meeting, sent written comments during the scoping period, or requested to be on the RMPA/EIS mailing list.

COMMENTS AND RESPONSES

A comment period on the Draft RMPA/Draft EIS was originally scheduled to cover a 90-day period from February 12, 1999 to May 17, 1999. The printer finished printing the document and mailed all copies on January 20, 1999. Because of this, the comment period was 15 days longer than originally planned. During the comment period, 108 comment letters were received on the Draft RMPA/EIS document. In addition, four comments were late but were accepted as late comments. Public hearings were held in 12 locations around the State (each with an afternoon and evening hearing) to provide for individual testimony. During the public hearings, 38 individuals provided testimony. Three people showed up after the hearing was over and wished to make comments on the Draft RMPA/EIS, and their comments were taken on tape and later typed for the record.

All letters and testimony were reviewed and considered in preparation of the Proposed RMPA/Final EIS. Comments which addressed the adequacy of the Draft RMPA/EIS received a response. Each commentor was assigned a number according to the order of receipt. Commentors are listed on Table 5-8.

The comment letters and verbatim transcripts of testimony taken at the public hearings are not all printed in this document. However, comment letters received from local, State and other Federal agencies are printed in this document. The letters are displayed in Appendix G. Copies of all comment letters, hearing transcripts, and typed comments from taped comments are available for viewing at the BLM New Mexico State Office, 1474 Rodeo Road, Santa Fe, New Mexico.

Every comment which addressed either the adequacy of the Draft RMPA/EIS or the merits of the alternative contained in letters, verbal testimony, and taped comments was assigned a number. The appropriate team member was then assigned the comments relating to his/her speciality in order to develop a response. Once the responses were complete, an effort was made to combine comments that contained the same or similar subject matter. Comments were also grouped by Chapter and Appendix. Comments are shown by environmental component in the same order as the Table of Contents.

Commentors should be able to track their comments from Table 5-8 by finding their name and noting the comment number assigned to their comment. The comment and response can then be found by looking up the comment number in the section following Table 5-8.

Table 5-8 LIST OF COMMENTORS			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
1	Frank Nordstrom (Self and the environment)	LC-1 & OH-1	67, 163
2	Legislature of the State of New Mexico (Senate)	LC-2	68
3	Brice Lee (Permittee, Private land owner & environmentalist)	OH-2	8, 9, 11, 18
4	Paul Brandy (Permittee & Vice President of San Juan Livestock Association)	OH-3	68, 69
5	Ted Graham (Owner of San Juan Livestock Sales Barn & President of San Juan Basin Livestock Association)	OH-4	68, 111
6	Stella Montoya (Self)	OH-5 & LC-73	12, 18, 50, 60, 159, 250, 251, 284, 285, 295
7	Barbara Truby (Lives and works on a Ranch)	OH-6 & LC-96	144, 155, 178, 179, 190, 191, 200, 208, 322
8	Grace Mason (Native Plant Society)	OH-7	37
9	David Sanchez (Self, Lt Governor's Office, & NM Cattle Growers)	OH-8	209, 210, 267
10	Charlie Chacon (Self)	OH-9 & LC-20	3, 42, 112, 209
11	Virginia Black (Self)	OH-10	23
12	Casey Sanchez (Self)	OH-11	5, 70, 196
13	Julia Mullen (Northern NM Legal Services & Farmers and Ranchers of area)	OH-12	68, 71, 112

Table 5-7 continued			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
14	Roger Peterson (Santa Fe Group of Sierra Club)	OH-13 & LC-18	47, 51, 67, 93, 94, 95
15	Jim Bates (Southwest Consolidated Sportsmen)	OH-14	72
16	Alice Anderson (Native Plant Society)	OH-15 & LC-9	51, 218
17	Marianne Thaeler (Self)	OH-16	51
18	Ross May (Cattle Rancher)	OH-17	62, 134, 211
19	Jack Carter (Native Plant Society)	OH-18	51, 67, 73
20	Tommy Perez (Self & Chairman of Public Land Advisory Committee to the Luna County Commission)	OH-19	6, 13, 24, 180, 212, 213, 291
21	Leedrue Hyatt (Self)	OH-20	38, 268, 333
22	David Bouquin (Self)	OT-1	51, 67
23	Kevin Bixby (Southwest Environmental Center)	OT-2	72
24	Cheryll Blevins (Chair of the Southern NM Group of the Sierra Club Executive Committee)	OT-3	51
25	S.D. Schemnitz (Self)	LC-3	113, 181
26	Susie Rossmann (Native Plant Society)	LC-4	51
27	Tiana Scott (Native Plant Society)	OH-21	51
28	Gary Simpson (Rangeland Issue Chair for Rio Grande Chapter of Sierra Club)	OH-22	51, 67
29	Priscilla Tracy (Self)	OH-23	47, 135, 157, 201, 292
30	John Stockert (Self)	OH-24	51

Table 5-7 continued			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
31	Charles Walker (Self and Lincoln Forest Permittees Association)	OH-25 & LC-107	44, 70, 133, 192
32	Joe Duft (Self, Member of Native Plant Society)	OH-26	51
33	Hildy Reiser (Native Plant Society)	OH-27 & LC-88	2, 35, 36, 43, 51, 74, 108, 139, 148, 154, 164, 174, 175, 176, 184, 185, 186, 187, 188, 189, 193, 195, 199, 205, 206, 255, 256, 257, 279, 293
34	Curtis Doyal (Self, BCI Incorporated)	OH-28	214, 337
35	Clarissa Hughlett (Self)	OH-29	114
36	Cassandra Witherspoon (Self)	OH-30	115
37	Lewis Derrick (Chairman of Eddy County Land Use Committee)	OH-31	39, 40, 114, 115, 165, 338
38	William Briney (Self)	OH-32	286
39	Hollis Fuchs (Lincoln County Public Land Use Advisory Council)	OH-33	149, 166, 344
40	Margaret Stevens (Self)	OH-34	167
41	Dan Girand (Regulatory and Affairs Director for Mack Energy and Chase Farms)	OH-35	25, 26, 39, 63
42	Joel Carson (Permittee, Self)	OH-36	10
43	Bud Eppers (New Mexico Public Land Council and Southern New Mexico Grazing Association)	OH-37 & LC-100	1, 7, 19, 20, 21, 22, 25, 27, 28, 29 30, 31, 68, 261, 266, 281, 306, 308, 309, 310, 320

Table 5-7 continued			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
44	Don Brewer (Rancher)	OH-38	168
45	Jeff Burgess (Self)	LC-5	75, 76, 77, 78, 79, 80, 81
46	George Wuerthner (Self)	LC-6	140, 202, 215
47	Julie Kutz (Self)	LC-7	82, 83, 84, 85, 86, 87, 169, 170, 269, 270, 271, 272, 273, 274
48	Eddy County (Board of Commissioners for Eddy County)	LC-8	14, 39, 212, 216, 217, 275, 282, 294, 295, 339
	Alice Anderson	LC-9	See Commentor Number 16
49	Wildlife Management Institute (WMI)	LC-10	41, 47, 52, 64, 116, 141, 171, 172, 203
50	New Mexico Environment Dept. (NMED)	LC-11	158
51	Thomas Lee Boles (Self)	LC-12	67
52	USDA Natural Resources Conservation Service (NRCS)	LC-13	32, 65, 88, 89, 90, 91, 145, 156, 276
53	Noel Marsh (Self and Otero County Cattlemen's Association)	LC-14	4, 33, 34, 53, 146, 173, 219, 334
54	County of Lincoln (Board of Commissioners of Lincoln County)	LC-15	54, 220, 283, 345
55	Imogen Stein (Self)	LC-16	92
56	T. A. Tanner (Self)	LC-17	221
	Roger Peterson	LC-18	See Commentor No.14
57	Rex Johnson Jr. (Self)	LC-19	96
	Charlie Chacon	LC-20	See Commentor No. 10

Table 5-7 continued			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
58	Robert Stevens (Self)	LC-21	222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232
59	Gustauo Martinez (Self)	LC-22	42, 112
60	Rosendo Serrano (Self)	LC-23	42, 112
61	Kathleen Stachowski (Self)	LC-24	286
62	Jane Schafer (Self)	LC-25 & LC-102	14, 15, 221, 233, 234, 295
63	Agnes Jaramillo (Self)	LC-26	42, 112
64	Phillenore D. Howard (Self)	LC-27	97, 98, 99, 117
65	R. Matthew Bristol (Self)	LC-28	55
66	James & Jeanette Coupland (Self)	LC-29	112, 115, 221
67	Virginia W. Cates (Self)	LC-30	42, 112
68	Patricia A. Stineburg (Self)	LC-31	286
69	Thomas C Evans (Self)	LC-32	286
70	Connie Shupla (Rep. of Estate of Elias A. Garcia)	LC-33	42, 112
71	Murray & Judy Keeler (Selves)	LC-34	62, 235, 236
72	Blaine N. Bagwell (Self)	LC-35	42, 112
73	Grace M. Bagwell (Self)	LC-36	42, 112
74	Martha Coody (Self)	LC-37	340, 341, 343
75	Jake Vigil (Self)	LC-38	42, 112
76	John B. Shawcroft Ranches (Self)	LC-39	42, 112
77	Jim Coody (Self)	LC-40	296, 340, 341, 343
78	Dennis and Ernest Moeller (Selves)	LC-41	42, 112

Table 5-7 continued			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
79	Michael Berman (Self)	LC-42	100, 101, 102, 237, 313
80	Jennifer L. Six (Self)	LC-43	238
81	Public Lands Foundation (PLF)	LC-44	103, 118, 122, 182, 287, 297, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332
82	Hidalgo County (Board of Commissioners for Hidalgo County)	LC-45	239, 240, 277
83	Central NM Group of the Sierra Club (Central NM Group Sierra Club)	LC-46	19, 56, 57, 104, 105 106, 107, 119, 120, 121, 122, 136, 137, 142, 147, 298, 299, 335
84	Rio Grande Chapter of the Sierra Club (RG Chapter Sierra Club)	LC-47	104, 105, 106, 107, 119, 120, 121, 122, 137, 142
85	Jimmy Goss (Self)	LC-48	221, 294
86	Sandi Chatfield (Sierra County Treasurer)	LC-49	235, 241, 242, 300
87	Harvey Chatfield (Self)	LC-50	235, 243, 301, 314
88	Bobby Jones (Self)	LC-51	14, 40, 212, 245, 253, 295, 340
89	Frances Goss (Self)	LC-52	221, 294
90	Carire B. Green (Self)	LC-53	221, 294
91	National Park Service (NPS)	LC-54	No comments
92	Harold Monsimer (Self)	LC-55	42, 112

Table 5-7 continued			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
93	Otero County (Board of Commissioners for Otero County)	LC-56	25, 138, 150, 162, 217, 244, 267, 295, 300, 302, 303, 315, 316
94	Juan Garcia (Self)	LC-57	42, 112
95	Ronnie Garcia (Self)	LC-58	42, 112
96	Kendra Goss (Self)	LC-59	221, 294
97	Lee and Karen Ankrom (Selves)	LC-60	221, 294
98	Michael J. Hudak (Self)	LC-61	75, 76, 77, 78, 79, 80, 81
99	Marguerite Benedict (Self)	LC-62	342
100	Scott Maxwell (Self)	LC-63	151
101	J Wade Bennett (Self)	LC-64	14, 39, 212, 245, 294, 295
102	Elizabeth Shelford (Self)	LC-65	72
103	Emily Uptegrove (Self)	LC-66	72
104	James E Scoggin (Self)	LC-67	42. 112
105	Danial S. Howell (Self)	LC-68	58, 246
106	People for the USA (Luna Chapter)	LC-69	Resolution
107	Environmental Protection Agency (EPA)	LC-70	Rating
108	NM Department of Game and Fish (NMDG&F)	LC-71	59, 152, 153, 183, 247, 248, 249, 288, 289, 304

Table 5-7 continued			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
109	National Audubon - NM, New Mexico Audubon Council, Pajarito Group of the Sierra Club, New Mexico Natural History Institute and the Forest Guardians (The five groups listed above)	LC-72	104, 105, 106, 107, 119, 120, 121, 122, 137, 142
	Stella Montoya	LC-73	See Commentor No. 6
110	Robert E. Cowan (Self)	LC-74	60, 159, 250, 251, 284, 285, 295
111	New Mexico Coalition of Sportmen (NM Coalition of Sportmen)	LC-75	49, 106, 107, 116, 137
112	Palemon A. Martinez (Cerro Azul Grazing Association)	LC-76	42, 112
113	Paul Gutierrez (Self)	LC-77	60, 159, 250, 251, 284, 285, 295
114	Ronald L. Merritt, Sr. (Self)	LC-78	239, 240, 282, 294
115	Larry Caudill (Self)	LC-79	123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 197, 198, 204
116	Caren Cowan (New Mexico Cattle Growers' Association)	LC-80	159, 240, 251, 284, 295, 341
117	Francisco E Vigil (Northern New Mexico Stockman's Association)	LC-81	42, 112
118	Frank F. Gallegos (Self)	LC-82	42, 112
119	Dawn M. Robbins (Self)	LC-83	60, 250, 285, 295
120	Randall J. Summers (Self)	LC-84	60, 159, 250, 251, 284, 285, 295

Table 5-7 continued			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
121	Mary Ell Christian (Self)	LC-85	60, 159, 250, 251, 284, 285, 295
122	Caren Cowan (Self)	LC-86	60, 159, 250, 251, 284, 285, 295
123	Catron County (Board of Commissioners for Catron County)	LC-87	1, 252, 253, 254, 264, 278, 295, 305, 306, 316, 317, 318, 319, 342
	Hildy Reiser	LC-88 See Commentor No. 33	
124	Chaves County Public Land Advisory Committee (Bud Eppers Chairman)	LC-89	1, 252, 253, 254, 264, 278, 295, 305, 306, 316, 317, 318, 319, 342
125	Mr. and Mrs Bobby Melton (Selves)	LC-90	14, 66, 221, 295, 339
126	Mitch and Kelly Hibbard (Selves)	LC-91	14, 66, 221, 295, 339
127	Broadfoot Taylor (Self)	LC-92	109, 143
128	Coalition of AZ/NM Counties (NM County Members)	LC-93	1, 46, 48, 160, 161, 252, 253, 254, 258, 259, 260, 264, 278, 305, 306, 307, 316, 317, 318, 319, 342
129	Martin and Beckie Mosiman (Selves)	LC-94	42, 112
130	Brenna Goss (Self)	LC-95	221, 294
	Barbara Truby	LC-96 See Commentor No. 7	
131	Jennifer Truby (Self)	LC-97	194, 207, 265
132	Bill Taylor (Self)	LC-98	221, 294

Table 5-7 continued			
	SOURCE (REPRESENTING)	**TYPE OF COMMENT a/**	**COMMENT NUMBER(S)**
133	Justin or Brenna Goss (Self)	LC-99	221, 294
	Bud Eppers	LC-100 See Commentor No. 43	
134	Innis Lewis (Self)	LC-101	295
	Jane Schafer	LC-102 See Commentor No. 62	
135	Arden Lewis (Self)	LC-103	294, 295, 340
136	Jonna L Schafer (Self)	LC-104	14, 294, 295
137	Dale Lieth (Self)	LC-105	221, 234, 295
138	Robert Lorentzen (Self)	LC-106	61, 177, 280
	Charles R. Walker	LC-107 See Commentor No. 31	
139	Joe Bill Nunn (Self)	LC-108	221, 262, 336
The following comments were late, but were accepted and answered with a response			
140	Joe T. Maestas (Santa Cruz Irrigation District)	LC-109	42, 112
141	Debbie Hughes (New Mexico Association of Conservation Districts)	LC-110	16, 311, 321
142	Robert S. Jenks (Commissioner of Public Lands)	LC-111	45, 110
143	U.S. Fish and Wildlife Service (USF&WS)	LC-112	263, 290, 312

a/ Notes: Oral Hearing Testimony [OH], Oral Taped Testimony OT] or Letter Comments [LC]

COMMENTS ON DRAFT RMPA/EIS AND RESPONSES

GENERAL

1. Comment: The DEIS is difficult to follow in part due to their convoluted formatting and manipulation of both State analyses as well as Cooperating County inputs. CEQ requires that an EIS document be clear and understandable to the general public. This is definitely not the case as supported by testimony from the public hearings. There is a definite intermingling of State and County laws and regulations within the DEIS which adds considerable confusion to the general public. The DEIS is not in compliance with the NEPA Handbook under Chapter 44.19 which states:

> ***If the EIS is combined with another decisionmaking document [e.g., Cooperating County [EIRs] [the EIS] will be clearly and separately identified and not intenvoven into other portions of or spread throughout the [EIS] document.***

As it now stands the DEIS does not meet this requirement. It is impossible to understand what the real impacts are, much less sort out these distinctions cited above.

Response: Chapter 4-Section 4.19 of 516 Departmental Manual of the Department of the Interior refers the reader to 516 DM 4.6D. It states:

> If CEQ's standard format is not used or if the EIS is combined with another planning or decision making document, the section which analyzes the environmental consequences of the proposal and its alternatives will be clearly and separately identified and not interwoven into other portions of or spread throughout the document.

The BLM interprets the manual section to require a clear and concise analysis section in the EIS. The analysis of impacts should not be spread throughout the document. Consistent with the direction in the Manual, Chapter 4 of the DEIS is the analysis of the proposal and alternatives.

2. Comment: You should have each line numbered for ease of reference for those submitting comments.

Response: The numbering of lines is difficult when using a dual column format. The BLM chose not to follow the comment because the document is in a dual column format.

3. Comment: The comment period is very short and the public should be given enough ample time to request, or do whatever they want to do, as far as comments.

Response: The comment period on a Draft RMPA/EIS is normally 90 days. On this document the comment period was 107 days. The BLM believes that amount of time was adequate.

4. Comment: It is impossible to properly review and comment on a document, with this amount of technical material, within the allowed comment period. Request a six month extension for comments.

Response: The comment period on a Draft RMPA/EIS is normally 90 days. On this document the comment period was 107 days. The BLM believes that amount of time was adequate.

5. Comment: Rio Arriba County for some reason is not listed as a cooperator for the project.

Response: On October 11, 1996 BLM sent a letter to the New Mexico Counties that had not requested cooperator status for this project, formally inviting them to be a cooperator. Rio Arriba County did not request to be a cooperating county; however, they did provide BLM a copy of their custom and culture. The custom and culture of Rio Arriba County is in Appendix E on pages E-45 through E-48 of the Draft RMPA/EIS. Appendix E is also printed in this Proposed RMPA/Final EIS document.

6. Comment: We understand that as cooperating agencies we will be able to address along with the BLM the comments made during this comment period.

Response: The BLM and State Team will prepare responses to public comments in the areas of expertise they provided in the Draft RMPA/EIS. The counties can then review the responses. The BLM, as the lead Federal agency, has the final responsibility for the responses.

7. Comment: We firmly believe that the issues identified in these comments require a rewrite of the DEIS. This should be undertaken so the State, Counties and general public completely understand what precipitated this process and how their livelihoods, customs and cultures, communities, schools, and business communities will be affected. If it is not rewritten we are fearful that protest, appeals and litigation will prevent responsible management of our renewable resources. No one wins if this happens.

Response: It is not possible to identify site-specific impacts in the programmatic analysis level of the EIS. This is due to the fact that BLM has not determined which lands are meeting the standards. Because of this, BLM does not know who is affected. After the plan is in place and the site-specific targets identified, the public land will be assessed for compliance with the standards. Where the standards are not being met, a determination of the current practices contributing to the standard not being met will be made. Only then would BLM know who is affected by the guideline. An action specific Environmental Assessment (EA) will be completed prior to site-specific decisions.

8. Comment: What are the regulatory consequences of this EIS?

Response: The direction of establishing statewide standards and livestock grazing guidelines is consistent with the 43 Code of Federal Regulations §4180. The RMP Amendment/EIS, would not have an impact on the regulations. The alternatives are options on how the regulations will be implemented.

9. Comment: What is the appeal process?

Response: For the decision made as to the State Director's decision on which alternative is selected for the Proposed Plan Amendment/Final EIS there is a 30-day protest period. The specifics of how to protest is provided in the Dear Reader letter located at the front of this document.

Appeals and protests of individual decisions that implement the standards or guidelines are governed by standard procedures for the activities that would be affected. For livestock grazing decisions, the procedures are outlined in 43 CFR §4160 and §4. These regulations are available at BLM offices. For other activities, the appeal procedures are found in 43 CFR §4.

10. Comment: Supports the continuation of the public land for grazing and letting the supervision be at the lowest possible level because it has a big affect on our local government and our local economy.

Response: The BLM is charged with managing the public land and reporting to Congress on the conditions of the land. The various Field Offices are responsible for the administration of the public land which includes grazing supervision and others uses.

The RMP Amendments would establish the standards for the public land. As the Field Offices determine which areas do not meet the standards, they will determine if current uses are keeping the standards from being achieved. Where current livestock grazing practices are determined to be a reason the standards are not being achieved, the guidelines will be applied. How the guidelines will be implemented will be developed by the local Field Office personnel in careful and considered consultation, cooperation, and coordination with affected permittees/lessees, landowners involved, the Resource Advisory Council, State of New Mexico agencies having lands or responsible for managing resources within the allotment, counties and the interested public.

11. Comment: Am I going to have these regulations enforced on my private land which are intermingled with the public lands?

Response: The regulations governing the management of public land do not apply to private land regardless of their location. However, where the same livestock graze on adjoining private land and the public land in common, the requirements of the guidelines may affect

use on the private land if the private landowner elects to not fence the private land from the public land and manage them separately.

12. Comment: Need to have representatives from each district that would come in and be able to talk about what the problems were instead of trying to decide that everything has to be done in a certain way and get it from Washington or wherever they do it.

Response: The RMP Amendments would establish the standards for the public land. As the Field Offices determine which areas do not meet the standards, they will determine if current uses are keeping the standards from being achieved. Where current livestock grazing practices are determined to be a reason the standards are not being achieved, the guidelines will be applied. How the guidelines will be implemented will be developed by the local Field Office personnel in careful and considered consultation, cooperation, and coordination with affected permittees/lessees, landowners involved, the Resource Advisory Council, State of New Mexico agencies having lands or responsible for managing resources within the allotment, counties and the interested public.

13. Comment: How can we do a complete and accurate site specific assessment on each allotment if the EIS is not even completed? It seems that we need to finish the EIS, like it or not, whatever comes out and then do our environmental assessments.

Response: EAs and EISs are completed with the best existing available information. Unfortunately, the EIS is not finished, but BLM has permits and leases that need to be reviewed for renewal and must move forward. Thus, the permits/leases are being reviewed against the fundamentals of rangeland health as described in 43 CFR §4180.1.

14. Comment: The BLM has written a finding of no significant impact (FONSI). This may not have a national base impact but we feel it will have impact at the County basis.

Response: A Finding of No Significant Impacts (FONSI) is a determination by the Federal agency that environmental impacts are not significant, and an EIS does not need to be prepared. Following scoping, BLM determined that the establishment of the standards and guidelines in New Mexico was controversial enough to merit preparation of an EIS. Thus, a FONSI was not prepared.

15. Comment: The Rhetoric is: "protect the family farmer" but everything that government does seems to have the opposite effect and winds up putting them out of business. The land is then gobbled up by sub-divisions, big corporations or by the Federal Government, as appears to be the aim of the Secretary of the Interior with the Standards and Guidelines that will satisfy him.

Response: The Department of the Interior has indicated our intent is to improve the health of the land. It is not our intent to stop livestock grazing on the public land or put anyone out of business.

16. Comment: Individual Soil and Water Conservation Districts have Memorandums of Understanding (MOU's) signed with BLM: these are not being utilized.

Response: We will review the existing Memorandums of Understanding (MOUs) and where they will facilitate implementation of the standards and guidelines, BLM will contract the appropriate Soil and Water Conservation Districts.

COVER LETTER

17. Comment: We question why, in a document that is supposed to address standards and guidelines for lands under the stewardship of the US Department of Interior's Bureau of Land Management, the cover letter is most prominently signed and sealed by some Lieutenant Governor.

Response: The State of New Mexico is a joint lead for this project. As joint lead, the State was asked if it wanted to sign the document and it did. The signature is not making any decisions, but releases the Draft RMPA/EIS document for public review and comment.

SUMMARY

18. Comment: This is not a user friendly document. It is very, very hard to figure out what is affecting San Juan County, San Juan watershed, what it's described here, and the specifics of this area are not summarized

in any one point in this document. You have to read through the complete document before you find out what's going to affect me.

Response: The BLM recognizes that it does not have data on which specific areas meet the standards and which areas have conditions that do not meet the standards. Therefore, only gross estimates were provided, and they were not tied to specific locations or maps. Determinations of impacts to specific individuals or allotments have not been made and therefore, cannot be identified by reading the document.

19. Comment: The range reform regulations should have been included in the document (up front in the summary) to determine the relationship and application of all of the regulations not just the standards and guidelines. The entire grazing regulations, have never gone through the NEPA process and so the public has not had the opportunity to analyze or even understand what is contained within those regulations. These regulations if published in this document would have helped people maybe to get a little better understanding of how the BLM is going to approach addressing the properly functioning condition of our rangelands under the standards and guidelines set up by the RAC.

Response: The Rangeland Reform '94 Draft EIS and Advance Notices of Proposed Rulemaking were made available for public comment. Final Rulemaking was published in February 1995. Since that time, the final rules have been published by the US Government Printing Office (GPO) in the 43 Code of Federal Regulations. Copies are available from the GPO. Thus they are readily available to the public. To reduce printing costs, they were not printed in this EIS.

20. Comment: Under the summary pages of the document in the second paragraph in the last sentence I would recommend that you delete the word "most" and insert "only" in reference to livestock grazing.

Response: Livestock grazing is not the only activity affected by the Standards. Standards will apply to the land, and all activities will be affected. Therefore, the use of the term "most" is appropriate.

21. Comment: Under the summary pages of the document in the fourth paragraph I would recommend that you delete "a relative small percentage." When you're talking about a relatively small percentage of allotments that you envision that may be affected, it amounts to 13 to 22 percent of the allotments. If these are the larger allotments, it could affect a large number of livestock and livestock producers.

Response: The phrase "a relative small percentage" has been deleted.

22. Comment: On page IX of the Summary, the last paragraph is an inaccurate statement. The fallback standards and guides should never have been included in this draft. If they have been subjected to the National Environmental Policy Act (NEPA) process as claimed by this administration why are they awaiting analysis under this draft EIS? If they developed as a part of the grazing regulations back in 1995 why has there not been a Record of Decision issued before now? It is readily apparent from my reading and interpretation that neither the grazing regulation nor the fallback standards and guidelines have been through a thorough NEPA analysis. Therefore they should not be considered in this Draft.

Response: In 1993, the Department of the Interior initiated a program to evaluate and perhaps modify BLM's livestock grazing administration on public land. After scoping meetings held throughout the West, the Department published the Range Reform '94 Program. The program included proposed regulation changes and was the proposed action for an EIS. A Record of Decision was signed by Secretary Bruce Babbitt on February 17, 1995. The final regulations reflected in the Record of Decision included requirements for Fallback Standards and Guidelines for Livestock Grazing should a State Director fail to implement locally developed standards and guidelines for livestock grazing. Although the Fallbacks are in place by regulations the Resource Management Plans have not been modified to be in concert with the regulations. Therefore, the BLM found it to be prudent to include the Fallback Alternative in this EIS, so when completed the Resource Management Plans would be consistent with whichever alternative was selected.

CHAPTER 1 - PURPOSE & NEED

Introduction

23. Comment: I support grazing in this part of the woods, and the woods can handle it, for the most part. I think people have been very conscientious, the agencies have been very conscientious about designing grazing programs that won't degrade the area.

Response: No response required.

24. Comment: **It appears that even the ranching industry has been discriminated against because none of the other areas or industries or people who use public rangeland have been taken to task like we have, none of the others. Why are we the only ones?**

Response: The standards are for the public land, regardless of the use being made of the land, be it grazing, recreation, or mining. The ranching industry is not being discriminated against as all public land will have to meet the standard set for the land. If the standard is not being met, the next step is to determine why. If an action needs to be taken to change management of the use of the land, then it will be determined what action to take. If it is determined, for example, that current grazing practices are the reason for the public land not meeting the standard, then a change in management of livestock would be required. If it is determined that the public land is not meeting the standard due to another use, then a change in management of that use would be required so the land would achieve the standard.

25. Comment: **Where is the need? I don't see an objective scientific background or evidence in the book to indicate a need. The book says there is a need, but we're expected to accept that without any real scientific evidence. There are some studies in the appendix but there is nothing in the book that justifies or sets out and describes objectively a problem. There ought to be some scientific justification for everything that we do additionally because we're pretty sensitive when somebody wants us to spend money and we can establish a reason or a need for it.**

Response: The regulations mandate the Fallback standards at this time. The amendment to the land use plan would adjust the land use plans to be consistent with the Fallback Alternative. The Resource Advisory Council (RAC) recommended the land use plans be amended for the RAC Alternative as opposed to the Fallback Alternative. The Counties recommended the County Alternative, and there was a need to analyze changes that would amend the land use plan for that Alternative.

26. Comment: What are the Standards, we need a more specific definition. They're so broad that they can be anything. We can be wanting to put a well in over in an area and the parameters aren't there to tell us whether we're going to be able to go there and build a road on a location or drill a well because these definitions are so broad they can be anything, depending on who is reviewing the application and what he thinks about the public. There's not objective standards to measure against, what is the desired plant community?

Response: The BLM agrees with the commentor that the standards are broad in nature and by reading the standards one cannot tell what activities can take place on the public land. Specific uses allowed for activities can be found in the land use plans at the various Field Offices.

27. Comment: In general the public has inadequate information to make an informed decision regarding this document. We have scoping meetings and we go to the meetings and nothing is disclosed. It's just a question and answer process of anybody who might have a question or answer or identify an issues that they think ought to be considered. Then we get the draft document, and there really has been no disclosure of the contents to the general public and how the BLM wants to proceed in the management, under this new management procedure.

Response: In May 1996, a scoping document was put together to inform the public of the standards and guidelines developed at the National level that would take effect unless local standard and guidelines were adopted. The scoping document informed the public of the work the Resource Advisory Council (RAC) had done at that time in the development of local standards and guidelines. Previous to that time, the RAC had received ideas from the public through public comment

at their meetings. Once the 16 scoping meetings were held around the State and the RAC and BLM received the comments from the public, the RAC made changes to the standards and guidelines, which were in the scoping document. The RAC then revised the standards and guidelines based on scoping and other comments and came up with the standards and guidelines documented and analyzed in the Draft RMPA/EIS. The Draft RMPA/EIS document is a disclosure of the Proposed Action and alternatives as well as the impacts of the Proposed Action and alternatives. The guidelines are the management that would be followed if the public land does not meet the standard, provided that the cause of the land not meeting the standard is in part attributed to livestock grazing. If the cause is other than livestock grazing, then changes to the management of that use would be made. The BLM did identify the RAC's Proposed Action as being the agency preferred alternative in the Draft RMPA/EIS document in the Abstract and on page 1-5 of the Draft RMPA/EIS. In the scoping document, BLM described the implementation procedure, in general. Beginning on page 1-2 under the heading of "Planning Amendment Process" of the Draft RMPA/EIS, is information on implementation.

28. Comment: A concern that we all might share is wildlife habitat; and although it's being alluded to within this document, there are really no definite needs or requirements of wildlife, of any species, that are addressed in this document. They are also grazing animals. This is just for livestock. Clarification is needed whether this is a livestock grazing EIS or what. Apparently the public does not understand it.

Response: In the design of the EIS, in Chapter 2, each of the alternatives including the Proposed Action is a package of actions that BLM could take to achieve the objectives of the regulations. Chapter 3 is a description of the elements of the environment as they exist today and includes discussion on such topics as vegetation, wildlife, recreation, water and economics to name a few. Chapter 4 then looks at how the various elements of the existing environment would change due to the package of actions contained in each alternative. This analysis is called the "cause-effect" or "from-to" relationship. Where an action causes an change, the effects are traced to other environmental components.

As mentioned in the Draft RMPA/EIS on page 1-1 under the "Introduction", this EIS analyzes the effects of adopting standards for public land health and guidelines for livestock grazing management. Standards will establish conditions for the land that BLM will maintain for the land to be considered healthy. All activities will then be adjusted to ensure the standards are achieved and maintained. Thus, livestock grazing is not the only activity affected by the Standards, as all activities may be affected. In this case, the alternatives include livestock grazing guidelines, thus, the effects discussed in Chapter 4 include not only the effects from implementing the standards, but livestock grazing guidelines as well. Because of this, the EIS has a more detailed analysis of the ranching environment and activities when compared to others.

The Affected Environment generally describes those species that may occur or be affected by the various alternatives. Habitat requirements for wildlife species cannot be fully identified. In Chapter 4, under the Environmental Consequences, the effects to wildlife habitat and certain wildlife species can be found (i.e., number of acres improved, or remain the same for a specific area).

29. Comment: On page 1-1 in the fourth paragraph, I recommend deleting "most effective if it can be." The standards will be tailored to site specific types of land, and think that would be more appropriate to delete that language and declare that the standards will apply to site-specific types.

Response: The change has been made.

30. Comment: On page 1-1 in the sixth paragraph would recommend deletion of the word "believed" and add "documented by monitoring." This is because we need documentable evidence based on monitoring to identify if there is a problem or not.
Response: In the Proposed Plan Amendment/Final EIS, BLM has deleted the word "believed" and replaced it with the word "determined." "Determined" means: To decide by an authoritative decision after reasoning, observation, etc.

The 43 CFR 4180.1(c) states:

> *The authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year upon determining that existing grazing management practices or levels of grazing use on public land are significant factors in failing to achieve the standard and conform with the guidelines that are made effective under this section.*

31. Comment: We have had a situation here in Roswell where BLM has gone out and looked at the riparian areas along the Pecos River and they found all of these riparian areas in properly functioning condition. Yet, they are drafting allotment management plans that are going to result in more restrictive management of the livestock grazing operation. Assuming BLM is trying to bring the range conditions up to a properly functioning condition (the goals and objectives of this plan), I think that the livestock operators ought to be allowed to continue using practices where their rangelands are in properly functioning condition.

Response: A riparian condition of properly functioning indicates the riparian area is providing the watershed function unique to riparian areas. A rating of properly functioning, does not indicate that the BLM is satisfied with the present condition. For example, along the Pecos River, as mentioned in the comment, the riparian area is rated as properly functioning but the present vegetation is dominated by non-native plants such as salt cedar and Russian olive. Although these plants provide for watershed protection and function, they are not the desired vegetation species. As the BLM, permittee, and other landowners work to remove the undesired vegetation and plant or reseed more desirable species, some adjustments in grazing may be necessary to protect the young plants.

32. Comment: On page 1-1, the definition of an Ecological Site is as follows. An ecological site, as defined for Rangeland, is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. (NRCS - National Range & Pasture Handbook, 1997)

Response: BLM has changed the definition to reflect the Natural Resources Conservation Service (NRCS) definition.

33. Comment: Livestock grazing is the standard, <u>normal</u> social and cultural occurrence on rangelands of the west, including "Public land," and not a major action. Livestock grazing occurred before Public Land Designation, before the Taylor Grazing Act, and before Statehood.

Response: The comment appears to be making the point that livestock grazing on rangelands in the west is normal and typical, and it should not be considered a major Federal action. Chapter 3 clearly states the level of livestock use on public land and does not appear to be in conflict with the comment concerning the typical situation on public land. The Draft RMPA/EIS document analyzes the impacts of setting standards for public land health and guidelines for livestock grazing management and does not identify livestock grazing as a "major action". The BLM does not see a need to modify the EIS based on this comment.

34. Comment: What actually does the term "<u>Guidelines</u>" for 'Livestock Grazing Management' mean? It is my impression that the final decision document on this subject will be used as a 'model' for other western states. Will "guidelines" in the final document mean <u>rigid rules</u>?, or <u>enforceable laws</u>? It is my opinion that the BLM does not have the <u>legal authority</u>, <u>budget</u>, or <u>staffing</u> to <u>actually</u> <u>manage</u> livestock grazing on public land. It is in fact the livestock producer (permittee) who <u>manages</u> the livestock grazing. Will the BLM be held legally responsible for the "Public Land Health" (the results), and the rancher be held legally responsible for the "livestock grazing management" (the means of achievement)? When you think about it, the two subject terms can at best only very vaguely and intangibly defined, and this only according to some prevailing persons' opinion. To me "standards" are standards, indicating rigidity. Guidelines indicate optimistic flexible, suggestions for success and therefore cannot be rigid. It does not seem proper to me to create in the same decision document part of that which is <u>rigid</u> and part of which is <u>flexible</u>. This would later become a confusion trap if enforcement of

either is ever attempted, because of the need to separate that which is applicable to <u>standards</u> and that which is attributable to <u>guidelines</u>. Confusion will exist in terms of <u>intent</u>, <u>practice</u> and <u>responsibility</u> for result. Please clarify or reconsider the titling or structure of this document.

Response: The commentor seems to be confusing the definitions of the terms "standards and guidelines" used by the US Forest Service with the terms used by BLM. For BLM, in this document, the term "standard" is a condition of the land that BLM would like to achieve. Livestock grazing guidelines provide broad direction on how livestock grazing activities will be managed to achieve the standards.

35. Comment: p. 1-1, Introd: EIS states - "Public land health exists when ecological processes are functioning properly to maintain the structure..." As this is the document's basic premise, the basis for your assessment then everything should reflect this goal!!!

Ecological processes encompass the soil (i.e., how will we minimize soil erosion)? The spacing between grass and shrub cover is related to ability of soils to erode, how does this spacing get reduced? On the broader scale, dense grass cover is important to high populations of grassland bird species like meadowlarks (which in turn are the primary prey of northern aplomado falcons)? Poor condition desert grasslands, low prey populations and no falcons.

Response: This comment relates to public land health and establishing this as a goal. The purpose of the BLM program is to focus on the health of the land: however, there are other goals that BLM should strive for. For example the National Environmental Policy Act (NEPA) says the following: in Section 101. (a)

> *The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the crucial importance of restoring and maintain in environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.*

Therefore BLM, where possible, is expected to find productive harmony between productive natural rangelands and communities dependent upon those rangelands.

36. Comment: p. 1-2. Since 1 March 1998, BLM has been supposedly implementing fallback S&G where "standards were not being met & livestock grazing was a contributing factor". Thus, at a minimum, there should be a map that depicts the number of allotments by habitat classification and field offices that are being managed under the fallback S&G management scenario. Please provide a map or give us, the public, these allotment numbers, the proportion of total allotments in the state, etc.

Response: Yes, the Fallback standards are in place. The stream channel morphology and riparian standards are analyzed through the interagency properly functioning process in Technical Reference 1737-15, 1998. The BLM public land has been inventoried under these procedures and the results of these inventories are found starting on page 3-13 of the Draft RMPA/EIS. The scale of the information would be hard to map for the RMPA/EIS, however the information is available at the various Field Offices.

The upland and biotic standards are broad in nature and specific criteria for interpretation of the standards has not yet been agreed to on an interagency basis. The BLM has not inventoried the public land to determine if the upland or biotic standards are being met. Therefore, BLM cannot provide a map for the upland and biotic standard.

Planning Amendment Process

37. Comment: The BLM seems to be creating a team of interagency specialists whose major function is to develop site indicators for range health. The RAC alternative seems to have specific guidelines for treating watersheds down to specific pastures. This seems to be moving in the direction of more cooperation among people who really know what to do out there on the land.

Response: The BLM recognizes that the land BLM is responsible to manage is often connected to adjoining lands through functions and/or processes. Management programs worked out with the adjoining landowners are generally more effective and efficient than programs designed to look only at public land management. Policies of BLM strive for science based programs developed through partnering and coordinated planning. The application of the guidelines to help restore the health of the land would be done in careful and considered consultation, cooperation and coordination with lessees, permittees, and others involved in concert with Section 8 of the Public Rangeland Improvement Act.

38. Comment: On page 1-4 it refers to "interested public" and states "When applying the grazing guidelines, the BLM manager will consult with the grazing permittee/lessee and other interested public to develop corrective actions." I would like to request that be changed to "affected public" rather than "interested public" for the reason that anytime you include interested public it means anyone can come on the spur of the moment and make comments and drag the thing out. I think people should be required to show how they'll be affected in advance so they don't come into a meeting on the spur of the moment and throw monkey wrenches in the proceedings.

Response: The BLM is guided by the regulations on this issue. The 43 CFR §4100.05 states:

> ***interested public*** *means an individual, or group or organization that has submitted a written request to the authorized officer to be provided an opportunity to be involved in the decision making process for the management of livestock grazing on specific grazing allotments or has submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment.*

The Grazing Regulations in 43 CFR §4120.2 require BLM to develop Allotment Management Plans (AMPs) or the equivalent of AMPs in consultation with the interested public and other specific parties.

39. Comment: Thinks peer science review should be inserted into the document on page 1-4. The best science database is what the Government's using now and it should be done under peer science review because when they use the database they now have it goes and makes a full force and effect decision to remove livestock off federal land and that the peer science review should be implemented through academia. Affects not only agriculture but mining and oil and gas too.

Response: Peer science review has been added in Chapter 1 as requested.

40. Comment: Section 8 hearings should be included in the peer review with affected interests and the permittees. Peer review would slow down lawsuits because the federal agencies are running from the lawsuits such as those the environmentalist bring. A peer science review will give the data and cattle will not be removed before the fact.

Response: Section 8 would apply when developing the site-specific standard targets for the County Alternative. For the Resource Advisory Council (RAC) and Fallback Alternatives, peer review would apply for developing the thresholds for the standards, while Section 8 applies when implementing the guidelines.

41. Comment: On page 1-4, it is disclosed that after the Final EIS is prepared it will be submitted to the Governor for his recommendations to the State Director of BLM. I fully understand importance of involvement in this process by the State of New Mexico, but this document deals with the management of public land, clearly a Federal jurisdiction. We strongly urge the BLM to carefully consider the validity of this and implications of how final decisions are made in this process.

Response: The wording in the Draft RMPA/EIS states: "At this time BLM will submit to the Governor the Proposed RMPA/Final EIS and identify any known inconsistences with state and local plans, policies, and programs. The Governor will then have 60 days in which to identify inconsistencies and provide recommendations in writing to the State Director." This wording is consistent with 43 CFR 1610.3-2(e) which requires BLM send it to the Governor for the consistency review.

42. Comment: The BLM must coordinate, rather than merely consult, with local entities and affected individuals to ensure a truly collaborative process. Ecological sites must be protected, but only through integrating dissimilar interest. Public land ranchers support and practice good stewardship out of concern for the long-term health and economic value of natural resources. We love the land, just as we love our way of life and we support efforts that truly benefit the environment. We believe that lasting solutions to public land issues can only be achieved through management that serves all stakeholders.

Response: The 43 CFR §4120.2(a) relates to this comment and stakeholders participation in livestock grazing programs. It states the following:

> *An allotment management plan or other activity plans intended to serve as the functional equivalent of allotment management plans shall be prepared in careful and considered consultation, cooperation, and coordination with affected permittees or lessees, landowners involved, the resource advisory council, and State having lands or responsible for managing resources within the area to be covered by such a plan, and the interested public...*

43. Comment: p. 1-4, 2nd column, 2nd and 3rd complete paragraphs: BLM is putting the cart before the horse; you are trying to adapt state-wide S&G, but then having local interests develop their expectations of what needs to be done. So what you actually are trying to develop are bare minimum S&G. This seems like all alternatives are bogus, and what you should show are minimum acceptable standards regardless of situations. Then based on site conditions, management actions may be more restrictive.

Response: These are the standards that were developed to ensure that the public land is healthy and properly functioning. This would not necessarily ensure that all the competing multiple uses are compatible. Additional management objectives and restrictions are expected to be developed in the Resource Management Plans or other activity plans.

44. Comment: On page 3-21 it shows that 1,891,665 AUMs are attached to "Base Property" which is private and Page 1-4 says the authorized officer has dicitatoral authority to destroy a ranching unit if it happen not to meet his (her) expectations. This is not right.

Response: The Draft RMPA/EIS and regulations indicate where the standards are not being met due to current livestock grazing practices, the authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year. The application of the guidelines to help restore the health of the land would be implemented in careful and considered consultation, cooperation and coordination with lessees, permittees, and others involved in concert with Section 8 of Public Rangeland Improvement Act. The normal decision and appeal processes found in 43 CFR §4160 for BLM grazing decisions would apply for any lease or permit modified as a result of the standards and guidelines.

45. Comment: The BLM proposal to create an interagency team of rangeland specialists responsible for developing site indicators is of interest to the State Land Office, since we hold lands in BLM grazing allotments. Consequently, we would like to contribute a member to that interagency team and ask that we be notified of its formation.

Response: The BLM is pleased the New Mexico State Land Office wants to participate and welcomes the New Mexico State Land Office participation.

Relationship to Existing Plans

46. Comment: 1-5 As stated in the summary, the Coalition believes that there was no consistency employed in determining the amendments to the RMPs on a statewide basis. The required amendments form the basis of impacts. Therefore, the disclosure of impacts throughout the Draft EIS is flawed. The Coalition suggests a re-examination of the changes to RMPs required by each alternative occur and analysis of impacts be calculated on the new assumptions.

Response: There does not need to be consistency Statewide. Each BLM Field Office knows what is in their Resource Management Plan as they developed the RMPs in question. The Field Offices know what decisions are affected, and how they are affected, thus, they are in the best position to determine which decisions, if any, need to be modified through the RMP amendment process. If Field Offices have overlooked a decision that should have been amended, but was not, it will be their responsibility to amend their plan.

Preferred Alternative Selection

47. Comment: Surprised and disappointed that the State supports the Coalition of Counties alternative instead of one that people from all over the state got together on based on. If you are going to listen to coalitions then they might also have consulted the Quivira Coalition which is a group of ranchers and environmentalist who work together to try to find good ways to protect the land and ways to use the land for cattle. They did not do that, but went with that organization which is almost always way far on one side of the issue. The State did ignore the citizens' input that they worked on for about one year.

Response: The State of New Mexico welcomed public input at all Resource Advisory Council (RAC) meetings. There was a public comment period at all RAC meetings during the development of the standards for public land health and guidelines for livestock grazing management. All coalitions have been welcomed at RAC meetings and invited to present input during the public comment period. To this day, the State is not aware of any input from the Quivira Coalition.

The National Environmental Policy Act (NEPA) process has been followed explicitly to maximize and ensure public participation. NEPA allows local governments to request Cooperating Agency Status. Some counties requested this status and were accepted by BLM.

48. Comment: P. 1-5 The Coalition concurs with and adopts the Lieutenant Governor's position that strong consideration be given to selection of the County alternative as the preferred alternative.

Response: No response required**.**

49. Comment: The BLM choosing the RAC alternative as "its" preferred alternative is not acceptable to us and demonstrates the extent to which the ranching dominates the BLM and how the BLM turns it back on the public it purports to serve.

Response: This comment reflects an opinion, no response is required.

CHAPTER 2 - PROPOSED PLAN AND ALTERNATIVES

General/Introduction

50. Comment: You are punishing the cattle industry by fencing off riparian and not letting cattle use them, while wildlife get on them. We should be a little more equal because we're furnishing the feed for the cattle whether it's private or federal land.

Response: The standards focus on productive and proper functioning riparian areas. Where current uses are not interfering with achieving the riparian standards or objectives they may continue. Where current uses are interfering with achieving the riparian standards or objectives, the uses will be modified to achieve the standards. The intent is not to punish the users, but rather ensure proper management of the public land.

51. Comment: None of the alternatives offered are reasonable, not even the Fallback position. Not that the latter is unreasonable; it just doesn't amount to much. Its standards are so vague as to be unenforceable. To be useful standards must say what

the land should look like and what water and wildlife it should produce. We realize a lot of work and a lot of negotiation, a lot of compromise, went into the preferred (RAC) alternative to reach compromise and please all the interested parties. The RAC alternative is heavily biased toward the ranchers, while paying no attention to the other users of the land, including the public. This alternative does not address watershed function, nutrient cycle or energy flow as required in CFR 4180. The proposed guidelines for this alternative are mere recommendations thus unenforceable. They are also illegal in that they fail to address eight of the twelve topics that are required to be addressed in the CFR 4180. The County alternative is even worse, being tilted toward control issues and economics rather than natural resources. The Fallback alternative standards and guidelines, now in force, lack the specificity required for enforcement, but they do cover nearly all the required topics except water quality. We think that with additions, the Fallback alternative provides a basis for meaningful standards and guidelines. The BLM interpretations in the Fallback alternative use words such as "could" and "should" and "would" and "may." These words should be changed where appropriate to "shall", "will", and "must" in the final EIS for this alternative to have meaning and to be enforceable. Thus science-based decisions must be standard practice by BLM and must be reflected in the interpretations of the Fallback Alternative. We and our sister conservation organizations are working on a draft of what we hope will be meaningful standards and guidelines. We hope the BLM will take the comments submitted on this draft EIS and produce a real set of standards and guidelines that will lead to solid improvement in New Mexico's rangelands.

Response: The BLM recognizes that the Statewide standards are broad in nature and must have site-specific interpretation. This would be required for all alternatives. The guidelines would be applied where current grazing practices are prohibiting the standards from being achieved. The BLM believes the guidelines are enforceable as they would guide BLM in developing grazing management practices to be prescribed. The Resource Advisory Council (RAC) Alternative was modified by the RAC to incorporate the requirements of the regulations.

52. Comment: Conclusions on page 2-13 dealing with the decision to ignore an alternative dealing with land suitability for grazing needs further attention in the FEIS. The reasons provided for this decision in the DEIS are weak and misleading at the best. I am very familiar with range monitoring techniques and do not agree that the so called "new methodology" addresses this issue at all. The fact is that there are some areas that are clearly unsuitable for livestock grazing. When unsuitable lands are included in grazing allotments, range condition deteriorates. There needs to be a process to deal with these situations. The FEIS should better address the important issue of land suitability.

Response: The BLM rangeland monitoring program identifies change in rangeland conditions. As the commentor asserts "when unsuitable lands are included in grazing allotments, range condition deteriorates." Accordingly, the BLM monitoring program identifies the areas where problems occur and adjustments are made. As pointed out in the Draft RMPA/EIS, this approach is preferable to projecting possible effects and is consistent with the grazing regulations.

43 CFR §4110.3-2(b) States the following:

> *When monitoring or field observations show grazing use or patterns of use are not consistent with the provisions of subpart 4180, or grazing use is otherwise causing an unacceptable level or pattern of utilization, or when use exceeds the livestock carrying capacity as determined through monitoring, ecological site inventory or other acceptable methods, the authorized officer shall reduce permitted grazing use or otherwise modify management practices.*

53. Comment: All alternatives must use the same definition for "Public Land Health" and "Guidelines for Livestock Grazing Management". These terms are actually goals or objectives. If all alternative approaches to attainment cannot agree on the goal, there is in fact no basis for comparison or analysis of alternatives.

Response: The comment appears to be making the point that for a valid comparison, the alternatives should use the same definitions. While BLM agrees with the commentor that consistency of definitions is important and the definitions between alternatives is

not always consistent, BLM believes it is important for the EIS to analyze the County Alternative. The State Director committed to include their alternative. All alternatives were compared to the baseline, which is the No Action Alternative (current management), not with one another.

54. Comment: Recommend that the Standards and Guidelines recognize historical custom and culture including all historical agrarian pursuits and would further ask for a policy of No Net loss of Private Properties, including water rights within the borders of Lincoln County, New Mexico.

Response: The Standards and Guidelines RMPA/EIS does not consider BLM acquiring private property, so there would be no direct net gain or loss of private properties, including water rights based on the alternatives in this RMPA/EIS.

55. Comment: I respectfully object to the Standards and Guides. The proposed standards and guides have no objective criteria for measurement. I object to accepting proposed Standards and Guides without knowing what they are in the first place. This is putting the cart before the horse and asking for trouble. The BLM is asking the public to agree to the consequences of non-compliance to the standards and guides without first establishing those standards and guides.

In Chapter 2, Introduction, it states, " ... therefore, continuing with the present management is not an option." without stating why. This is not a acceptable conclusion without proof. Basically, this seems to be a document intended to halt the current grazing practices without documentation that the practices adversely affect the environment.

The document goes on the state, "Although BLM does not have an established standard identified ...", the ecological and late seral conditions might generally be used. I object to the BLM setting standards when, "The BLM does not have an established standard identified".

Response: The 43 CFR §4180 regulations mandate that the Fallback standards be implemented unless State Director standards are developed and implemented. Therefore, the State Director has no choice, but to select the Fallbacks or another set of standards and guidelines. The commentor has a point that developing the general standards before the site-specific targets for measurement makes it difficult to analyze the impacts. However, developing site-specific targets prior to agreement on the general standard would not be prudent or timely.

56. Comment: Draft Plan/EIS is improperly and unacceptably skewed toward the commercial interests of a politically entrenched minority. This faction, backed by subsidized economic power and political influence, has staged a tawdry bit of "good cop" versus "bad cop" theatrics and used the smoke screen generated by an outrageous and completely insupportable "County" Alternative to provide cover for the manipulation of the New Mexico Statewide Resource Advisory Council (RAC) and the creation of an equally inappropriate, but more subtly disguised, "RAC" Alternative.

Response: Since the comment is nonspecific, no response is possible.

57. Comment: Even the selection and structuring of the alternatives considered in this Draft Plan/EIS seem to have been manipulated to prevent a full and clear disclosure of cumulative and connected impacts. For example, the development and assessment of a specific "No Grazing" Alternative for the public land under your agency's stewardship in New Mexico should have been the proper venue for clearly and fully exploring and documenting the cumulative impacts of subsidized livestock operations and the resulting divergence from natural conditions. For this reason, such an alternative should have been included in the Draft Plan/EIS. Instead, a stalking horse has been crafted around the past lack of formal standards and guidelines, artificially dignified with the misleading title of "present management," deceptively labeled as a "No Action" Alternative, and sent forth to usurp the proper role of the "No Grazing" Alternative and to thereby prevent the public disclosure and discussion that would have resulted from such a more meaningful "No Grazing" Alternative.

To refuse to pursue the analysis of a "No Grazing" Alternative also tends to taint, bias, and

prejudice the process by establishing an assumed "precedent for future actions with significant effects" or even "a decision in principle about a future consideration" as prohibited in 40 CFR 1508.271b)(6).

The Draft Plan/EIS indicates that "grazing is authorized by law and regulation;" however, no laws or regulations dictate a continuation of grazing when it conflicts with fundamental resource protection responsibilities. The stated rationale behind the elimination of the "No Grazing" Alternative from further study was that "grazing is authorized by law and regulation," thus allegedly removing the "No Grazing" Alternative as a viable option.

Response: The BLM has considered the comment and determined, as identified on page 2-13, in the Draft RMPA/EIS, a no grazing alternative is not needed.

58. Comment: I've seen first hand the results of mis-management as a former Range Technician for USDA. Do not turn decision making over to the cattle growers. I favor strengthening the regulations to protect our public land resources.

Response: The BLM has not proposed to delegate the responsibility to manage the public land. However, the BLM does favor management options and approaches that encourage participation in public land management by parties interested in public land management.

59. Comment: In the 1990 Memorandum of Understanding between the NM Department of Game and Fish and the BLM, the BLM has agreed to "Appropriately recognize and give full consideration to wildlife as a desirable and co-equal resource on public land under the multiple resource management concept." The Department is concerned that none of the standards and guidelines in the proposed alternatives sufficiently recognize the importance of standing residual vegetation and litter as cover for wildlife. Grassland bird species require residual vegetation for nesting cover, and many of these species are declining. Breeding Bird Survey data indicate that grassland bird populations are experiencing the greatest population declines of any other avian group in North America (Robbins et al. 1993, Knopf 1994), probably attributable to habitat modifications from grazing and other human activities (Martin and Finch 1995). The lesser prairie chicken (*Tympanuchus pallidicinctus*) usually nests within sand sage-grassland or shinnery oak, and appears to require residual clumps of tall grasses for successful nesting (Davis 1979, Riley et al. 1992). The lesser prairie chicken has recently been determined by the U.S. Fish and Wildlife Service to be Warranted But Precluded for federal listing under the Endangered Species Act. Mule deer (*Odocoileus hemionus*), a priority management species for the Department, needs adequate residual vegetative cover for fawn survival. High predation rates and low fawn survival may be attributable in some areas to loss of cover from grazing (Green Hammond 1996). When selecting a final alternative to implement, the BLM should consider its commitment to recognize wildlife as a coequal resource, and the importance of residual vegetative biomass as wildlife cover and forage.

Response: The Proposed Plan provides for a biotic standard that recognizes native wildlife and wildlife habitat as an integral part of public land health.

60. Comment: Each area interpreted the language of the guidelines differently thereby eliminating consistency.

Response: The BLM agrees there may be different interpretations of the guidelines among the various Field Offices. The differences expressed in the analysis approach are expected to be similar to actual implementation. The local Field Office personnel in careful and considered consultation, cooperation, and coordination with affected permittees/lessees, landowners involved, the Resource Advisory Council, State of New Mexico agencies having lands or responsible for managing resources within the allotment, counties and the interested public will develop how the guidelines will be implemented.

61. Comment: A new alternative is needed to focus on improving the range that does meet the standard while retiring the range that is unsatisfactory. This nation has plenty of green pastures in hilly country unsuited for farming where beef is produced on private land. By subsidizing the public land rancher in the arid Southwest we are hurting these farmers. I would

rather see our public land managed for wildlife than for subsidized ranching. Livestock grazing should be permitted only on public land in satisfactory condition.

Response: The commentor is proposing a new alternative. This appears to be a personal preference. The BLM is responsible for sound resource management. The Federal Lands Policy and Management Act (FLPMA) directs BLM to manage resources for multiple use, and livestock grazing is one of the multiple uses. The new alternative would require additional time and funding to develop and analyze and does not appear to be consistent with the mandates of FLPMA nor with historical land management practices of BLM. Normally BLM does not stop the activities, but BLM makes adjustments to the activities so the management objectives can be achieved.

<u>No Action Alternative</u>

62. Comment: It seems rather strange to me that present management (used as a guideline or comparison for the other alternatives) is not an option that can be selected, because with the present management you find that in 1995 there were only 4 percent of the public land in a downward trend, whereas 41 percent were in an upward trend and 55 percent were static (staying about the same). Good or late seral went from 24 percent in 1986 up to 35 percent in 1996, which is an 11 point gain. Fair which is mid-seral, went down. The poor lands went down 9 percent during the ten year period. My point here is that present management pretty well was doing a good job with the help of Mother Nature. Present management has not been failing, so why not stick with it?

Response: The 43 CFR §4180 mandates that the Fallback Standards and Guidelines apply if the State Director does not establish State-specific standards and guidelines. Therefore, the regulations prohibit the current management alternative.

63. Comment: There's no baseline. If you think it doesn't look good now, you should have lived here in the forties and fifties. This county looks pretty good in comparison. You could be setting a standard that's never been and maybe never will be and that needs to be nailed down. Would like the least restrictive alternative, because don't see that there is a problem.

Response: There is a baseline and that baseline is the No Action Alternative (current management). Even though no management is analyzed, it is not an alternative that can be selected because it is not consistent with the requirements of the 43 CFR §4180 regulations.

64. Comment: The four alternatives presented do not provide much decision space. The no-action alternative is essentially not viable given existing federal law, policy, and regulations. I would argue that the no-action alternative means that management decisions would revert to the Fallback Alternative. The document argues that the no-action alternative is viable and would basically be management before the Fallback standards were effective. Given Federal regulations, how could the New Mexico BLM implement the no-action Alternative and ignore the Fallback Alternative? This confusion needs to be clarified in the FEIS.

Response: The commentor is on track that the regulations prevent BLM from returning to the "No Action Alternative." As explained on page 2-1 of the Draft RMPA/EIS, the No Action Alternative serves as a benchmark; however, the Fallback Alternative is presently in place.

65. Comment: On page 2-1 - last paragraph - When NRCS is the lead agency in the CRMP process, NRCS will assure that the NEPA process is followed on the planning area. NRCS does not routinely do environmental assessments (EA) on federal lands. EA development on public land is the responsibility of the land-administering agency. NRCS would not have authority to implement NEPA on BLM lands. NRCS would however assure that the land administering agency approved of the CRMP and it would be the responsibility of the land-administering agency to assure NEPA compliance on lands under their jurisdiction.

Response: BLM Instruction Memorandum NM-97-039 dated September 9, 1997 outlines, in an attachment, the BLM/NRCS procedures regarding Coordinated Resource Management Plans. The procedures were worked out by BLM and NRCS.

The procedures convey that the agency determined to be the lead agency will be responsible for complying with the National Environmental Policy Act (NEPA). A meeting of the lead agency and the non-lead agency (or agencies) during the project planning stage will be scheduled to discuss how to insure NEPA documentation requirements are met. The non-lead agency, however may need additional documentation peculiar to the agency role, and it would be that agency's responsibility to produce the documentation to go into the NEPA document.

66. Comment: All EIS's should contain a "No Action or Change Alternative" as it was prior to the Rangeland Reform 94 EIS.

Response: The No Action Alternative is current management as it was at the beginning of the writing of this RMPA/EIS (a picture in time).

Resource Advisory Council (RAC) Alternative

67. Comment: The Human Dimension (rancher-welfare) Standard is on equal footing with the three physical and biological standards. Does this mean that the environment is to be sacrificed to satisfy current social problems? Do short term human issues have equal footing with long term environmental consequences? Can erosion of a priceless resource, our land, be accorded equal footing with the human dimension? Long after these current human problems are history the land will still be there. A better way to alleviate human problems is to enhance the health of the land so it remains a producing, sustaining resource. It is self evident that healthy land will make the human dimension prosper over the long period of time. It is short sighted to mortgage the prosperity of tomorrow's humans for short term considerations. While the human dimension is important, the long term ecological health of the grazing is far more significant and always should be. BLM should not be saddled with regulations that impose socially based restrictions on the manner in which they form grazing decisions. When you stick human dimension in there, right away it establishes ranchers through their economy as a protected class. We've all got a stake in this that's every bit as important as the stake that a rancher has. Ranchers are not part of rangeland health, which is a matter of soils, water, vegetation, and wildlife. Ranchers are important, but no more so than other users and owners of the public land, who are scarcely recognized by proposed "custom and culture" standards. Setting livestock grazing as the priority activity (which both RAC and County alternatives do) is contrary to law and, because (at least as managed by BLM) livestock grazing is the most destructive activity on most BLM acres, is contrary to the goal of rangeland health.

Response: This standard is in conformance with the National Environmental Policy Act (NEPA) which states in Section 101. (a):

> *The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the crucial importance of restoring and maintain in environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in protective harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.*

In addition, the Federal Lands Policy and Management Act (FLPMA) and the planning regulations direct BLM to work with other Federal agencies, State and local governments and Indian Tribes in the development of planning documents. Although the standard directs and mentions permittees and lessees, it also identifies that other interested public be given consideration. The BLM does not view the Sustainable Communities and Human Dimension Standard as placing one interest over another as suggested by the comment, but merely recognizes that the economic, social and cultural elements are integral components of public land management. The standard reflects the intent of the governing laws to promote productive harmony between people who comprise the

multiple users dependent upon the BLM land and the natural resources. While NEPA provides for promoting many of the elements in the Sustainable Communities and Human Dimension Standard and FLPMA provides for use of the public land, laws such as the Endangered Species Act and Clean Water Act require BLM to take certain actions to protect the environment. These laws are not overridden by FLPMA or NEPA.

68. Comment: Supports and endorses the human dimension standard as important as endangered species and water quality for public land management decision-making.

Response: The Endangered Species Act - (ESA) Section 2 (c)Policy states:

> *(1) It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.*

Additionally, the Clean Water Act of 1977 §313 (a) states:

> *(a) Each department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government (l) having jurisdiction over any property or facility, or (2) engaged in any activity resulting, or which-may result, in the discharge or runoff of pollutants, and each officer, agent, or employee thereof in the performance of-his official duties, shall he subject to, and comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity including the payment of reasonable service charges. The preceding sentence shall apply (A) to any requirement whether substantive or procedural (including any record keeping or reporting requirement, any requirement respecting permits and any other requirement, whatsoever), (B) to the exercise of any Federal, State, or local administrative authority, and (C) to any process and sanction, whether enforced in Federal, State, or local courts or in any other manner. This subsection shall apply notwithstanding any immunity of such agencies, officers, agents, or employees under any law or rule of law. Nothing in this section shall be construed to prevent, any department, agency, or instrumentality of the Federal Government, or any officer, agent, or employee thereof in the performance of his official duties, from reporting to the appropriate Federal district court any proceeding to which the department, agency, or instrumentality or officer, agent, or employee thereof is subject pursuant to this section, and any such proceeding may be removed in accordance with 28 U.S.C. 1441 et seq. No officer, agent, or employee of the United States shall be personally liable for any civil penalty arising from the performance of his official duties, for which he is not otherwise liable, and the United States shall be Liable only for those civil penalties arising under Federal law or imposed by a State or local court to enforce an order or the process of such court. The President may exempt any effluent source of any department, agency, or instrumentality in the executive branch from compliance with any such a requirement if he determines it to be in the paramount interest of the United States to do so; except that no exemption may be granted from the requirements of section 306 or 307 of this Act. No such exemptions shall be granted due to lack of appropriation unless the President shall have specifically requested such appropriation as a part of the budgetary process and the Congress shall have failed to make available such requested appropriation. Any exemption shall be for a period not in excess of one year, but additional exemptions may be granted for periods of not to exceed one year upon the President's making a new determination. The President shall report each January to the Congress all exemptions from the requirements of this section granted during the preceding calendar year, together with his reason for granting such exemption. In addition to any such exemption of a particular effluent source, the President may, if he determines it to be in the paramount interest of the United States to do so, issue*

regulations exempting from compliance with the requirements of this section any weaponry, equipment, aircraft, vessels, or vehicles, or other classes or categories of property, and access to such property, which are owned or operated by the Armed Forces of the United States (including the Coast Guard) or by the National Guard of any State and which are uniquely military in nature. The President shall reconsider the need for such regulations at three-year intervals.

The Sustainable Communities and Human Dimension Standard does not override the mandates of the law. However, the standard would continue to emphasize the policy identified in FLPMA and NEPA to seek productive harmony in the management and use of the public land.

69. Comment: I support the use of the human standard which it seems like to me, and to many of my friends, that the government has kind of gone off the deep end with managing the country for just one species, and if you are going to manage for one species that species should be humans rather than a bird or reptile. The country is better served by looking at it holistically and looking at the whole picture and being the most productive as a whole rather than just for one species.

Response: The BLM agrees that it is better to look at the whole (holistically) picture than to look at one species. The standards focus on communities rather than specific individuals. However, it must be recognized that when it comes to species protected by the Endangered Species Act, focus on a single species may be required.

70. Comment: The main concern is seeing the things about endangered species. I see that we are not listed and think the rancher should. I think we need to go to putting people first, before animals, plants and things.

Response: The BLM agrees that it is better to look at the whole (holistically) picture than to look at one species. The standards focus on communities rather than specific individuals. However, it must be recognized that when it comes to species protected by the Endangered Species Act, focus on a single species may be required.

71. Comment: RAC Alternative is weak because it uses non-binding words like "consult", "consider", and "efforts". A consultation can be one phone call, and none of those words legally requires the agency to ultimately factor in the concerns of local communities when making decisions. The County alternative, on the other hand, states that multiple use and other statutory requirements shall be balanced with economic, social, and cultural considerations to promote and even sustain and enhance local communities. This balance is required at all times rather than being limited to certain specific actions as with the RAC alternative. The agency is required to coordinate rather than just consult with entities and individuals, which means that those entities and individuals can actually participate in the process. Ultimately protection of ecological sites is also mandatory with that standard, but it must be achieved through integrating dissimilar interests rather than riding roughshod over local communities and ignoring hundreds of years of tradition, and environmental custodianship, historical usage rights, cultural heritage and economic needs and benefits. Implementation of the County human dimension standard no doubt would prove logistically cumbersome, but is well worth the trouble. It allows for management of BLM lands which will ultimately benefit all concerned, and for that reason offers the only chance for long-term resolution of the tremendously important and very thorny public land issues that we face today.

Response: This comment infers that under the Fallback and Resource Advisory Council (RAC) Alternatives the BLM would develop programs without consideration of local communities, and ignoring hundreds of years of tradition, and environmental custodianship, historical usage rights, cultural heritage, and economic needs and benefits. This appears to be an overstatement as current laws and regulations would not be overridden by the standards. For example, the National Environmental Policy Act (NEPA) states in Section 101. (a):

The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion,

resource exploitation, and new and expanding technological advances and recognizing further the crucial importance of restoring and maintain in environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in protective harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

In addition, 43 CFR §4120 requires that grazing programs be developed in careful and considered consultation, cooperation, and coordination with affected permittees/lessees, landowners involved, the Resource Advisory Council, State of New Mexico agencies having lands or responsible for managing resources within the allotment, and the interested public.

72. Comment: I support the RAC alternative. Implementation of this alternative would improve the forage base and water quality for both domestic animals and wildlife resulting in increased economic benefits to the public land grazing operators as well as aesthetic benefits of importance to wildlife enthusiasts and other public land users. The RAC proposal appears to weigh the interests of all parties more equitably as well as focusing on the long-term range improvement goals.

Response: No response required.

73. Comment: I'm afraid the RAC alternative freezes the status quo in place. It does not allow for future priorities. I'm afraid it rests on a very short-term economy. The ranchers that are doing the best job are long-term people. They're out there for a hundred years and they want it in a hundred years from now and that means the soil, the water, the plants, the animals, including all those big mammals, the cattle, and the deer and the elk. We've got to deal with all those, and that requires a long-term economic picture.

Response: No response required.

74. Comment: I would recommend that your personnel talk to folks at Texas A&M's Department of Range Science (Dr. Wayne Hamilton, Dr. J.W. Stuth, among others). They have made some excellent information available on their website regarding such important topics as: 1) Contingency (drought) planning, 2) Building a range forage base, 3) Effects of vegetation on runoff and erosion, 4) influence of vegetation type on sediment loss, surface water infiltration rates, and 5) provided numerous recommendations. Recommendations such as, the amount of ungrazed forage in desert rangeland should be greater than 250 lb/acre, in shortgrass rangeland around 500 lb/acre, etc., along with the rationale. Where do NM allotments fit into this scenario?

Another sound recommendation : "Deferment ... is critical to range management, but even more so to drought preparation. Remember that moderate or even light grazing is no substitute for deferment because animals will eat all they can find of the most preferred species and reduce range improvement and production. Grazing management and grazing systems that incorporate effective deferments help build the range forage base. There are many, effective grazing systems to use".

Yet the BLM has the audacity to state that year-round grazing can continue unabated. In the Alternatives listed, there are no discussions of drought preparation or contingency plans.

Response: The comment was provided to the Resource Advisory Council (RAC), and the RAC made changes to the RAC Alternative.

The RMPA/EIS does not choose one grazing system over another, but presents information from various sources. There are a number of grazing systems available. Periods of rest are important to plant health. The grazing system must be developed to meet the needs of the resource, but also tailored to fit the livestock operation. Where there is a short growing season and yearlong use, there is a built in deferment

for a majority of the plants in the allotment. Providing there is a variety of plants, a minimum of steep terrain, numerous water points, and proper stocking, yearlong grazing can provide a suitable grazing program.

75. Comment: The guidelines for livestock grazing included in your proposed action, called the Resource Advisory Council alternative, include a requirement that they be "based on science." This is good, as public land management should be science-based as much as possible. However, the specific Livestock Grazing Management Practices (LGMPs) included in the guidelines contradict this statement because they contain some management prescriptions that are based on the junk science embraced by the proponents of Holistic Resource Management (HRM). For example, LGMP 1, Section C, lists four practices that have been discredited by scientific research. The first one calls for using livestock to, "Integrate organic matter into the soil." The idea is that cattle can significantly improve soil fertility by trampling plant litter and their own manure into the ground. But research has shown that lack of moisture in the arid Southwest severely limits microbial decomposition of organic matter lying on the ground. Subsequently, most decomposition is the result of detritus-feeding arthropods, especially subterranean termites, taking the litter underground, below the topsoil, and eating it there (Hadley 1981; Whitford 1982.) Besides that, significant amounts of organic matter are removed from the ecosystem every year when the cattle are rounded up and shipped to market. Scarce precipitation, not poor soil fertility, is the primary limiting factor on plant vigor in the arid Southwest. And the rain doesn't follow the hoof.

Response: In development of the standards and guidelines, the Resource Advisory Council (RAC) consulted with a number of land management agency personnel and rangeland scientists at universities and research stations. The RAC considered the comment and did not make adjustments.

76. Comment: The second practice in the Resource Advisory Council alternative, Section C calls for using livestock to, "Distribute seeds and establish seedlings." The idea is that cattle hoof action can grind seeds into the ground and break up the soil surface to create a better seedbed. But studies of the effects of cattle hoof action upon seedling success have found the quantity and timing of precipitation is the most important factor affecting seedling survival (Bryant 1989; Winkel 1991).

Response: While timing of precipitation is important, many other factors are also important and have effects on seedling survival. Seedling survival may be poor, or not occur every year if conditions are such that the factors for seedling survival are not present. Hoof action, however, is one of the factors that does help create a better seedbed so that if conditions are right, seedling survival will succeed. This was discussed with the Resource Advisory Council members at a recent meeting. No change was made as a result of this comment.

77. Comment: The third practice listed in the Resource Advisory Council alternative, Section C calls for using livestock to, "Prune vegetation to stimulate growth." Scientists acknowledge that many plants will compensate for injuries, like those caused by grazing, by producing new growth. While the new shoots may be better forage for cattle, research has shown that plant biomass production cannot be increased by grazing, except under growth-chamber or cultivated conditions (Belsky 1986; Bartolome 1993; Briske 1993; Cox 1985; Painter 1993; Fatten 1993). Stimulating plants by grazing them doesn't necessarily make them healthier, and can kill them if the utilization level is too high or if use occurs too often (Fleischner 1994.) Desert grasses, for instance, store energy in their root systems so that they can survive the frequent dry spells. If they are grazed too much or too often, their efforts to produce compensatory growth may appear, in the short term, to be an improvement in vegetative vigor. But in the long run their reserves will be exhausted and they will being to die out. Grasslands can be degraded so severely by overgrazing that they pass over an ecological threshold on to a different vegetative continuum (Anderson 1981; Westoby 1989; Laycock 1991). Subsequently, most Southwestern range scientists believe that establishing a conservative cattle stocking rate, whereby annual forage utilization on the uplands is limited to 50% or less, is the most important factor in crafting a successful livestock management plan (Holechek 1988;

Holechek 1997). Implicit in the idea of using cattle to simulate plant growth is the belief that green, succulent vegetation is good and standing dead plant matter is bad. But standing plant litter deflects and absorbs rain, thereby reducing erosion (Forsling 1931; Lodwermilk 1930). And it provides habitat, food and cover for a variety of living things. Some plants, in fact, find life-giving shade beneath their own old growth. Standing plant litter is also necessary to fuel the natural fire regime.

Response: In development of the standards and guidelines, the Resource Advisory Council (RAC) consulted with a number of land management agency personnel and rangeland scientists at universities and research stations. The RAC considered the comment and did not make adjustments.

78. Comment: The last practice listed in the Resource Advisory Council alternative, Section C calls for using livestock to, "Enhance infiltration." The idea is that trampling of the ground by cattle hooves breaks up the soil surface so that runoff is slowed and the rain is better able to soak into the ground. But research has shown that cattle hoof action actually impairs soil health in two ways. First, it compacts the soils upper layers which reduces the ground's ability to soak up water and increases runoff (Lull 1959). At the same time, the destruction of the soil's crust further accelerates erosion by making the surface soil more easily washed away (Weltz 1986; Taylor 1989; Johansen 1993; Trimble 1995). Some soil crusts, called cryptogamic, are alive and contribute to nutrient fixation in addition to slowing erosion. They also provide habitat for some plants. Destroying them doesn't allow "useful" plants to grow, but produces bare soil (Anderson 1982; Harper 1985; Ladyman 1996).

Response: In development of the standards and guidelines, the Resource Advisory Council (RAC) consulted with a number of land management agency personnel and rangeland scientists at universities and research stations. The RAC considered the comment and did not make adjustments.

79. Comment: The concept that cattle can be used as a "tool" to improve the condition of the arid lands of the Southwest is not scientifically valid. Cattle are actually an exotic animal that must be intensively managed to mitigate the environmental degradation they can inflict. Cattle do not mimic the native grazing wildlife, but cause disturbances that lead to the proliferation of exotic and invasive annuals (Mack 1982). Considering the abundant scientific research questioning the benefits of the practices listed in Section C of the LGMPs, why have you proposed to include them? I am not aware of any existing research supporting their use. I strongly request that you remove them from the LGMPs.

Response: In development of the standards and guidelines, the Resource Advisory Council (RAC) consulted with a number of land management agency personnel and rangeland scientists at universities and research stations. The RAC considered the comment and did not make adjustments.

80. Comment: I suggest that the Resource Advisory Council alternative, Section B of the LGMPs be enhanced to include the statement that annual forage utilization should be limited on the uplands to 50%, or less.

Response: In development of the standards and guidelines, the Resource Advisory Council (RAC) consulted with a number of land management agency personnel and rangeland scientists at universities and research stations. The RAC considered the comment and did not make adjustments.

81. Comment: The LGMPs in the Resource Advisory Council alternative, should include a riparian specific management prescription. Why was none included? Livestock grazing is the number one cause of degradation to the riparian areas remaining on the West's public land (Chaney 1990). I suggest you should add a provision to the LGMPs that prohibits livestock grazing in riparian areas during the growing season, at least.

Response: The Resource Advisory Council (RAC) considered the comment and adjusted the guideline for facilities in riparian/wetland areas.

82. Comment: I am opposed to the County alternative. Federally owned lands should not be regulated and controlled by counties. People around the U.S. pay taxes to maintain and purchase federal public land and everyone in the country should have a say as to how

they are managed, what access they can have, and what kinds of land use should be allowed. Overall, I believe the proposed action (RAC alternative) is a good start for a grazing management plan for BLM. This plan should, however have more elements of the Fallback alternative incorporated into it. I have done a lot of hiking on BLM lands in NM and have seen evidence of destructive land use practices, most of which is attributable to overgrazing by livestock. There are many fragile ecosystems in our state where grazing by livestock should be discontinued or severely curtailed. Evidence of irreversible destruction can be found in areas such as the Jornado del Muerto (area MLRA 42). Areas such as the J.d.M. are not adapted to the amount of continuous forage removal required by domestic livestock. Because of millions of years of evolution and adaptation to harsh environments, these fragile systems may only be capable of sustaining certain types of grazing attributed to native ungulates and other wildlife, and not domestic livestock. The desert plateau in the area around San Ysidro and in the Rio Puerco valley has suffered from overgrazing as evidenced by lack of native vegetation in some areas. The BLM needs to manage the areas under its control in these areas to insure overgrazing is stopped. Like riparian habitats these other fragile habitats must be managed intensely by BLM in order to try and restore native plant and wildlife communities.

Response: The Resource Advisory Council (RAC) modified the RAC Alternative guidelines to insure range improvements in riparian areas will not prevent proper functioning of the riparian area.

83. Comment: The proposed alternative needs to expand on its management plan for protecting cultural resources. It is not enough to say that with this plan any future livestock facilities will be located away from cultural sites to prevent damage. Protection needs to occur around these sites now, even if it means fencing around a site to keep livestock from trampling the area or causing erosion.

Response: All comments were provided to the Resource Advisory Council (RAC) for consideration.

The BLM is currently in the process of identifying archaeological sites at risk from the direct impacts of livestock grazing, and prioritizing them for protective fencing. Sites with vertical features such as standing walls or rock art panels tend to be most at risk from the direct effects of cattle. Depending on the type of site and its condition, fencing can sometimes do more harm than good by attracting the attention of looters and pothunters. These and other factors will be taken into account in the prioritization of sites for fencing.

Site-specific measures to address damage from erosion are being considered, however the problem is usually more effectively addressed from a larger scale watershed based approach. Efforts are ongoing to address problems of erosion in terms of entire watersheds.

84. Comment: On page 2-2 in the 2nd column and continuing on 2-3 in the 1st column under the Biotic Communities, Including Native Threatened, Endangered, and Special Status Species Standard it is suggested that the following words be inserted (words to be inserted are all caps).

Ecological process support HEALTHY, productive and diverse NATIVE biotic communities, including special status, threatened, and endangered species appropriate to site and species.

Desired plant community goals are met to maintain and conserve productive and diverse populations of NATIVE plants and animals which sustain ecological functions and processes.

Indicators for this standard may include but are not limited to the following:

- **Commensurate with the capability of the ecological site, NATIVE plant and animal populations are:**

  Productive

  Resilient

  Diverse

  Sustainable

- **Landscapes are composed of communities in a variety of successional stages and patterns.**

- **Diversity and composition of communities are indicated by the kinds and amount of NATIVE species. Endangered and special status species are secure and recovering. With the goal of delisting and ensuring that additional species need not be listed within New Mexico.**

Response: The Resource Advisory Council (RAC) discussed the proposed changes. Where there was consensus, the RAC made adjustments.

85. Comment: On page 2-3 in the 1st column, under the Riparian Sites Standard it is suggested that the following words be inserted (words to be inserted are all caps).

Riparian areas are in a productive PROPERLY FUNCTIONING and sustainable condition, within the capability of that site.

Meaning That:

Adequate vegetation of diverse age and composition is present that will withstand high streamflow, capture sediment, provide for groundwater recharge, provide habitat and assist in meeting water quality standards.

As Indicated By:

Indicators for this standard may include but are not limited to:

- **Stream channel MORPHOLOGY AND stability as determined by:**

  Gradient

  Width/depth ratio

  Channel roughness

  Sinuosity.

- **Streambank stability as determined by:**

  Shearing and sloughing

  Vegetative cover on the bank.

- **Appropriate riparian vegetation includes a mix of communities comprised of NATIVE species with a range of:**

  Age

  Density

  Growth form.

Response: The Resource Advisory Council (RAC) discussed the proposed changes. Where there was consensus, the RAC made adjustments.

86. Comment: On page 2-3 in the 2ND column, under the Human Dimension Standard it is suggested that the following words be inserted (words to be inserted are all caps, while words to be removed are also in caps but inside ( ).

Human Dimension Standard

Economic, social and cultural (Human Dimension) elements are integral components of public land management.

Meaning That:

When engaged in NEPA and RMP planning and decision-making for public land management, the New Mexico BLM in consultation with state, tribal, local governments, individuals, and other concerned public and private organizations will use available means and measures to create and maintain conditions under which people and nature co-exist in productive harmony. Consideration of the WILDLIFE AND THE HISTORICAL ECOSYSTEMS THEY ARE INDIGENOUS TO, economic, historical, cultural, and social welfare of the permittees, lessees, other (AFFECTED INTERESTS) INTERESTED PUBLIC, and local communities, to maintain productive and sustainable ecological sites for present and future generations of Americans.

As Indicated By:

Indicators for this standard may include but are not limited to:

Efforts at conflict resolution, negotiation and communication. Formal and informal agreements

and partnerships with private landowners and others.

Consider the following factors:

> **HEALTH OF ECOSYSTEM**
>
> **Economic (income, tax base, related services, and risk assessment);**
>
> **Social (community stability, aesthetics, values and population change);**
>
> **Cultural (customs or traditions, values and sense of community).**

Response: The Resource Advisory Council (RAC) considered the proposed changes, however decided not to make your proposed changes to the Sustained Communities and Human Dimension Standard.

87. Comment: On page 2-3 in the 2ND column and on page 2-4 in the 1st and 2nd columns under the Guidelines for Livestock Grazing it is suggested that the following words be inserted (words to be inserted are all caps, while words to be removed are also in caps but inside ( ).

<u>Guidelines for Livestock Grazing</u>

Guidelines are any reasonable and practical management options which, when applied, move rangelands toward statewide standards. Guidelines reflect potential for the watershed. Guidelines also balance resource goals contained in RMPs with social, cultural/historic, and economic opportunities to sustain viable local communities, and to consider recreation and aesthetic values. Guidelines are based on science, past and present management experience, and public input.

These guidelines are for public land livestock grazing. They do not apply where public land are deemed unsuitable or not used for livestock grazing. These guidelines will be used to develop grazing management practices that will be developed and implemented at the watershed, allotment, or pasture level.

Specific application of these guidelines (Livestock Grazing Management Practices--LGMPs) will occur at the local level in careful and considered consultation, cooperation and coordination with lessees, permittees, and land owners involved.

New Mexico's intermingled land ownership pattern creates a patchwork of resource management objectives. The resource should be viewed as a whole with full appreciation for this integrated relationship and recognition of the rights of private landowners to enjoy the benefits of that ownership.

Guidelines should encourage innovation and experimentation in the development of alternative livestock grazing management practices to improve rangeland health AS LONG AS IT DOESN'T IMPACT THE NATURAL STATE OF LANDSCAPE OR IMPEDE NATURAL MIGRATION PATTERNS OF IMPACTED WILDLIFE.

> **1. LGMPs should promote plant health, and soil stability, water quality, and habitat for wildlife and threatened and endangered species, by providing the following basic requirements of rangeland ecological sites:**
>
> > **(a) Allow for plant recovery and growth time;**
> >
> > **(b) Allows residual vegetation on both upland and riparian sites to protect the soil from wind and water erosion, support infiltration, and prevent excessive evaporation;**
> >
> > **KEEP POLLUTION FROM INFILTRATING**
> >
> > **(c) LGMPs include the use of livestock to:**
> >
> > > **(1) Integrate organic matter into the soil,**
> > > **(2) Distribute seeds and establish seedings,**

(3) Prune vegetation to stimulate growth, (4) Enhance infiltration.

(d) Season, duration, frequency and intensity of use should be flexible and consider climate, topography and kind, class and health/condition of livestock AND WILDLIFE.

2. Future livestock management facilities should be located away from natural riparian-wetland areas wherever they conflict with achieving or maintaining the desired future condition.

3. Give priority to rangeland improvements and land treatments that offer the best opportunity for achieving FLPMA standards.

4. Where LGMPs alone are not likely to achieve the desired plant community (including control of noxious weeds), land management practices including, but not limited to, GRAZING ABSTENTION, prescribed fire, biological, mechanical, and chemical land management treatments should be utilized.

5. Native plant species are recommended for rehabilitating disturbed rangeland. (SEEDING OF NON-NATIVE SPECIES WILL BE CONSIDERED BASED ON LOCAL GOALS, NATIVE SEED AVAILABILITY, AND COST.)

6. The public land grazing resources of New Mexico are managed on the basis of multiple use and sustained yield. Livestock grazing WHERE APPROPRIATE AND SUSTAINABLE produces food and fiber, and contributes to a diverse, balanced, competitive, and resilient economy. Management should provide opportunities for a variety of individual choice and risk taking ventures in a responsible manner. This guideline may include, but is not limited to, consideration of impacts to employment, earnings, per capita income, investment income, federal government payments to the state, tribal and local governments, and tax base.

Response: This comment was provided to the Resource Advisory Council (RAC). Following intense discussion the RAC modified it's guidelines in several locations.

88. Comment: On page 2 - 2 - RAC Alternative - Standard for Public Land Health - Upland Sites Standard: There is a typing error on Column 1 last paragraph first sentence. Should read "Upland ecological sites are in a productive and sustainable condition..."

Response: The typing error has been corrected.

89. Comment: On page 2 - 3, Riparian Sites Standard - Indicator for this standard - Streambank Stability - Add "Minimal" shearing & sloughing. Shearing & sloughing indicates a degraded condition, and unstable streambank.

Response: Following careful consideration, the Resource Advisory Council (RAC) added "the degree of" to the indicator sentence just above where you requested that "minimal" be added.

90. Comment: On page 2 - 3, Coordinated Resource Management & Planning (CRMP) should be included as an indicator for the Human Dimension Standard.

Response: Following careful consideration, it was decided not to include Coordinated Resource Management Plan as an indicator. Coordinated Resource Management Plans would be recognized as an indicator under "Efforts at conflict resolution, negotiations and communication. Formal and informal agreements, and partnerships with private landowners and others."

91. Comment: On page 2 - 4, Section 1. (d) Season, duration, frequency and intensity of use should be flexible and consider climate, topography, kind, class and health/condition of livestock. Add the following.

"and should also consider the needs of the plant community". Season, duration, frequency and intensity of use should always consider the needs of the plants as well as the needs of animals.

Response: The comment was provide to the Resource Advisory Council (RAC) and the RAC made numerous changes to the sentence.

92. Comment: The RAC preferred alternative is unacceptable since it seeks to protect primarily the more narrow interests of the local cattle ranchers. We need large-scale protection of streams, lands and wildlife for all to enjoy, now as well as in the future of our grandchildren. Request you favor the Fallback Alternative.

Response: No response required.

93. Comment: The most general and most important guideline should state that sites that are far from meeting the standards for rangeland health or where health is judged to be unattainable or unsustainable with livestock grazing will not be regularly grazed by livestock. Sites with highly erodible soils that cannot be protected by vegetative cover will not be grazed. Sites that produce water that does not meet water-quality standards will not be grazed.

Response: In development of the standards and guidelines, the Resource Advisory Council (RAC) consulted with a number of land management agency personnel and rangeland scientists at universities and research stations. The RAC considered the comment and did not make adjustments.

94. Comment: For uplands the most important set of standards are definite average vegetation heights, say 4 inches for shortgrasses, 6-8 inches for midgrasses and most forbs, and 24 inches for tailgrasses, that should exist at the beginning of the growing season. Requirements for percentage of forage consumed are not a useful substitute for stubble-heights; see recent literature such as Burkhardt 1997, "Grazing utilization limits: an ineffective management tool, Rangelands 19: 8-9; or, for a poor article but better literature citations, see Scarnecchia 1999, Journal of Range Management 52: 157-160. It's actual, visible vegetation that protects soils, provides wildlife habitat, and is easy to measure; utilization percentages do none of these.

Response: The comment is not in conflict with the Resource Advisory Council (RAC) standard. In Chapter 1 it states that targets will be developed for each ecological site. Literature and research will be considered in determining levels of standing live vegetation, protective litter, and/or rock cover needed to stabilize the soils.

95. Comment: For riparian sites the most important standards are water quality (especially lack of sediment) and condition of streambanks, say, 90% covered by vegetation or rock and less than 5% showing accelerated erosion or trampling.

Response: The BLM uses the interagency Riparian Area Management guide to assess properly functioning condition. It is Technical Reference 1737-15, 1998.

96. Comment: The "county and preferred alternative" are two of the worst proposals for the management of public land I have yet seen. They ask the public to subsidize public land ranching practices that degrade the land.

Response: Because the comment is nonspecific, no response is possible.

97. Comment: To quote from the DEIS, "Public land health is defined as the degree to which the integrity of the soil and the ecological processes of public land are sustained." Also, "Standards describe conditions needed for healthy sustainable public range lands and relate to all uses of the public land. They provide the measure of resource quality and functioning condition upon which the public land health will be assessed" Guidelines, on the other hand, are "management tools, methods, strategies, and techniques desired to maintain or achieve standards".

The RAC Alternative Human Dimension Standard is a management strategy, not a descriptive standard of public land health. Its indicators (efforts at conflict resolution, consideration of economic factors) are

processes by which public land might be managed to achieve resource health.

If these concepts are to be included anywhere they should be in the Guidelines, not in the Standards.

Response: The Resource Advisory Council (RAC) discussed the comment extensively, and although the RAC recognized it as a legitimate point, it chose not to make a change.

98. Comment: Although I understand that the intent of the original Resource Advisory Council was to make the Guidelines more New Mexico-specific, the RAC Alternative does not accomplish this. - Furthermore, I am astonished at how inadequately the RAC Alternative covers the areas required, at a minimum, by Regulation 43 CFR 3180 (e). For instance:

> **1 - There is no guideline in the RAC Alternative comparable to (e)(2). Associating infiltration only with residual vegetation as in l(b) of the RAC Alternative is inadequate. Regulation(e)(2) addresses soil conditions which support appropriate permeability rates - which are affected, for example, by compaction.**
>
> **2 - Regulation (e)(3) addresses residual vegetation to improve riparian-wetland functions of sediment capture, groundwater recharge, and stream bank stability. RAC Alternative Guideline I(b) addresses these issues obliquely but says nothing directly about sediment capture or stream bank stability. There must be a specific guideline.**
>
> **3 - Regulation (e)(5) addresses appropriate kinds and amounts of soil organisms, plants, and animals to support the hydrologic cycle, the nutrient cycle, and energy flow. One could probably argue that the RAC Alternative addresses this issue in some vague, oblique way. It should be addressed specifically.**
>
> **4 - The focus of Regulation (e)(f), (g), (h), and (i) on native species - both plant and animal - is lost in the RAC Alternative. Specifically, Section (i) states that "Native species are emphasized in the support of ecological function". Important phrases required by the regulations such as "sustain native population and communities", "conservation of species", "restoration of habitat" are missing in the RAC Alternative.**
>
> **5 - Section 2 of the RAC Alternative states that only future livestock management facilities should be located away from natural riparian-wetland areas. This is inconsistent with Section 3(m) of the Regulations which requires that facilities are located away from riparian-wetland areas wherever they conflict with achieving or maintaining wetland function.**
>
> **Section 6 of the RAC Alternative is so ambiguous that it would generate endless arguments about its meaning. Clearly, this is where the RAC attempted to write a guideline addressing the "Human Dimension Standard". It illustrates the fundamental problem with a human dimension standard in a document which is supposed to address the ecological health of the public land.**

The first sentence of Section 6 is a fact so I don't take issue with it. The second sentence is a matter of opinion, varies from one area to another, is irrelevant, is not a "guideline" for management, and should not be included. The third sentence is consistent with the way the Bureau of Land Management functions. The fourth sentence is too non-specific to be used as a management guideline. What does "consideration" mean in this sentence? Some assume that it means that when a change of management would negatively impact any of the parameters listed (employment, earnings, etc.) the change would not take place. Who is to say what "consideration" means?

Page 2-3, first paragraph of Guidelines of the RAC Alternative, the sentence "Guidelines reflect potential for the watershed", is a false statement. Standards

reflect the potential condition of the land. Guidelines are management tools, methods, strategies, and techniques.

At the time I am writing these comments I have only seen a draft of guidelines being submitted as an alternative by a coalition of environmental groups (the Environmentalists' Proposal). Their guidelines are consistent with the Regulations and are more specific than the Fallback Guidelines. They would provide true guidance to land managers. I suggest that these be merged, as appropriate, with the Fallback Alternative Guidelines. So doing will produce an even better final product.

Response: The Resource Advisory Council Alternative was adjusted, based on public comment, to fully cover the elements of the grazing guidelines as outlined in 43 CFR §4180.2.

99. Comment: The Standards of the RAC Alternative, excluding the so-called Human Dimension Standard, and the Guidelines of the Fallback Alternative, expanded and modified as suggested by the Environmentalists' proposals, would provide the best set of Standards for Public Land Health and Guidelines for Livestock Grazing Management.

Response: No response required.

100. Comment: I feel the process that selected the RAC Alternative was coopted by those who have an economic interest in its implementation and stand to benefit from it. It forces the taxpayer to subsidize public land ranching, and represents a government welfare system of the worst sort. It lacks a sound basis in science and economics.

Response: No response required

101. Comment: The Preferred alternative is a recipe for the status quo.... it will only encourage a continuum of overgrazing and damage to public land.

Response: Because the comment is nonspecific, no response is possible.

102. Comment: The RAC failed to consider an alternative which focused on the actual conditions of the land. The RAC failed to look at the economic resources of the people who hold the permits, and assumes a poor rural status. It fails to look at the costs of grazing to both the local and national public is forced to pay.

Response: This comment was provided to the Resource Advisory Council (RAC) for consideration. The RAC has a diversity of interests, from throughout the State in rural and urban areas. The BLM is not aware of the considerations the individual RAC members took into account when it made recommendations.

103. Comment: In practice the Human Dimension factor would either limit the options for remedial actions in preparation of allotment management plans to attain acceptable public land health, or require adjustments to, and thereby downgrade allotment management plans to service the human dimension factor. In either case, it would cause the allotment management plan to be less than desirable. If the HD factor is applied prior to development of the AMP, the first consideration would be to determine the number of livestock required for an economical ranch operation. The number of livestock needed would then determine the forage required by the animals and hence, the degree of forage utilization on the public land. BLM routinely uses forage utilization in its monitoring program to establish the proper livestock numbers to affect positive changes in public land health. If the AMP is developed on the basis of existing livestock numbers and annual measurements of forage utilization over a period of years, any adjustment to increase the livestock numbers, based on the Human Dimension Factor would defeat the objective of the AMP.

Response: The BLM views the Sustainable Communities and Human Dimension Standard as providing visibility to the requirements of National Environmental Protection Act, Federal Land Policy and Management Act and the Planning regulations to work with the public, other Federal agencies, State and local governments and Indian Tribes in the development of planning documents and the management of programs. Although the Standard directs and mentions permittees and lessees, it also identifies that other interested public be given consideration. The BLM does not view this standard as placing one interest over another as suggested by the comment, but merely

recognizes that the economic, social, and cultural elements are integral components of public land management. The standard reflects the intent of the governing laws and regulations to promote productive harmony between people who comprise the multiple users and depend on the BLM land and the natural resources. The standard would not override the laws that protect the resources.

104. Comment: The first three of the four RAC Standards include nothing measurable; there is no way to judge whether they are being met. As a result these vague Standards are unenforceable. Some of the proposed guidelines for grazing management are vague and ALL are stated merely as advice, with words and phrases like "recommended" and "should be". They are therefore completely unenforceable.

Response: The BLM recognizes that the upland and biotic standards are broad in nature, as written. The standards, as written, provide indicators but not targets. In Chapter 1, it states that these targets will be developed as part of the implementation process. For the Riparian standard, procedures found in Technical Reference 1737-15, 1998 will be used.

The BLM believes the guidelines are enforceable as they would guide BLM in developing grazing management practices to be prescribed. The Resource Advisory Council (RAC) Alternative was modified by the RAC to incorporate the requirements of the regulations.

105. Comment: The "Human Dimension" Standard sacrifices resource protection and sustainable natural resources for short-term rancher economics and the preservation of the current rancher "culture". This Standard promotes the direct subsidization of the rancher "culture" at the expense of the public's capital, its land base. Strong emphasis is given to permittees, lessees and local communities. The Standard does not address, however, the interests of the owners of the land (i.e. the public), other land users such as hunters, wildlife watchers, archaeologists, recreationists, or downstream water users whose water is directly impacted, in terms of both water quality and water quantity, by the management practices of public land upstream. The preservation of the ranchers' "custom and culture" is favored in this Standard over any other custom or culture, such as that of the Native Americans. This raises the obvious question of fairness and the question of whose customs and cultures are worthy of special protection. In our opinion, all of the aforementioned interests are at least equal to those of local ranchers, who should not be singled out for special protection. We do not suggest enlarging the standard to include all owners and users. No doubt the BLM has responsibilities to all these groups, these standards however, are supposed to be concerned with rangeland health, not with rancher's welfare or hunter success or access to minerals, etc. The BLM should not be in the business of deciding valid "customs and cultures". The goal of rangeland health is seriously; if not completely compromised by the inclusion of rancher welfare and rancher preservation as a component of the standard. We strenuously object to the "Human Dimension" Standard.

Response: The Resource Advisory Council (RAC) discussed this point and decided not to make a change, nor to delete the Sustainable Communities and Human Dimension Standard from it's alternative. The BLM does not interpret the standard as protecting any specific class or group of Americans. The Sustainable Communities and Human Dimension Standard would apply to all uses of the public land not just livestock grazing. When using the term permittees and lessees in the standard, it is referring to all permittees and lessees. Oil and gas lessees would be considered as well as grazing lessees. Recreation permittees would be considered as well as grazing permittees.

106. Comment: The Code of Federal Regulations (43 CFR 4180.2) specifies five topics that must be included in State standards. Of these the RAC alternative omits "watershed function" and "nutrient cycling and energy flow". Therefore, the RAC Standards cannot legally be adopted.

Response: The Resource Advisory Council (RAC) adjusted it's alternative to fully cover the elements of rangeland health standards as outlined in 43 CFR §4180.2.

107. Comment: The Code of Federal Regulations (43 CFR 4180.2) specifies twelve topics that must be included in State grazing guidelines. Of these,

the RAC alternative omits numbers 3, 4, 5, 7, 8, 9, 10 and 12, as numbered in the Code, which is ironically quoted on page A-2 of this Draft EIS. Therefore, the RAC grazing guidelines cannot legally be adopted.

Response: The Resource Advisory Council (RAC) Alternative was adjusted, based on public comment, to fully cover the elements of the grazing guidelines as outlined in 43 CFR §4180.2.

108. Comment: P. 2-2, column 2. you state, "Consistent with the .., soils are stabilized by appropriate amounts of...". This is followed by we only want "to prevent accelerated erosion". This seems to indicate that "unaccelerated" erosion is okay.

Response: Accelerated erosion is that caused by man's activities and designated as accelerated because it is in addition to natural or geologic erosion. The term "unaccelerated" erosion would refer to natural erosion and usually that is acceptable. It becomes unacceptable when it impacts life and property such as in landslides or mudflows on homes and highways.

109. Comment: The biological health of the land is the foundation that all human activity is built upon. When human goals and values take precedence, and they are at cross-purposes with the biological needs of the land, then we have a recipe for disaster for all. Human goals and values are just pie in the sky if they are not built around the basic needs of the healthy earth. If we are truly interested in protecting the land so it can be bountiful and beautiful, we have to recognize the harm that certain human activities have done and are doing, and be willing to change our ways. Both the County and the Resource Advisory Council Alternative fail to come to grips with that central reality. Both alternatives bent on preserving historical livestock grazing practices avoid as best they can the tough medicine needed to heal and protect our public land. They amount to human folly in their attempt to have their cake and eat it to.

Response: This general statement was provided to the Resource Advisory Council (RAC). The RAC made adjustments to the RAC Alternative.

110. Comment: Of the alternatives presented, we recommend the RAC alternative. This alternative provides a framework for focusing on rangeland health with a strong component for input from rangeland experts and the public. While such a degree of public involvement could influence or divert attention from needed management actions, this alternative also focuses on the human dimension of rangeland management. This alternative also contains more specific guidelines and has a strong emphasis on riparian/watershed management.

Response: No response required.

<u>County Alternative</u>

111. Comment: Need to have County control, not the federal government in control.

Response: The Taylor Grazing Act and the Federal Land Policy and Management Act (FLPMA) establish the Department of the Interior, Bureau of Land Management as having responsibility to manage the public land.

112. Comment: I strongly urge you to adopt the human dimension standard as described in the alternative presented by the New Mexico Coalition of Counties, all state primacy considerations aside. I am delighted to see economic, social, and cultural factors receive the consideration they deserve. Only the County Alternative human dimension standard ensures that economic, social, and cultural considerations will carry the weight they must carry under Federal law. The other alternatives allow for either no consideration of these factors or only pro forma consideration without substantive effect, and thus create the risk that the BLM will be violating its own enabling and governing laws.

Response: After review of the governing laws for BLM and the various alternatives proposed in the RMPA/EIS, the BLM finds that the Resource Advisory Council (RAC) Alternative is in concert with the laws governing human dimension issues.

113. Comment: On page 2-7 "collection native plants" should be "collection of native plants", then on page 2-8 "Federal agencys" should be "Federal agencies".

Response: The Coalition of Counties agreed to the two changes to the County Alternative you suggested; they have been made in the Proposed RMPA/Final EIS document.

114. Comment: I favor the County alternative, because input from the local community is necessary to maintain balance concerning the human dimension and natural resources.

Response: No response required.

115. Comment: I favor the County alternative, because it recognizes and places focus on state's rights as well as individual rights therefor placing the rancher on a more equal footing regarding policy making.

Response: No response required.

116. Comment: The County Alternative is a non viable alternative in that implementation would violate a number of existing Federal Laws and policies. The County Alternative fails to acknowledge Federal responsibilities and jurisdictions. It also maintains that the grazing privilege is a "right." This contention has recently been rejected in New Mexico by the Tenth Circuit Court of Appeals. For these reasons and others this alternative is inappropriate and should be left out of the FEIS.

Response: The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative analyzed in an EIS is required to be within the law. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

117. Comment: I do not support the County Alternative Standards because every Standard is explicitly defined as being a "balance" with the conservation "of individual, social and cultural/historic economic opportunities to promote, sustain and enhance local communities". This is inconsistent with the minimums required by Regulation. A Standard of ecological health of the land should not be expressed as a "balance" of anything.

I do not support the County Alternative Guidelines because they overemphasize the protection of existing or established land use and stocking levels and focus on short-term economic impacts, to the detriment of both short-term and long-term health of the land.

Response: No response required.

118. Comment: The County Alternative would recognize the New Mexico State authority as exceeding that of the Bureau of Land Management set forth in the Taylor Grazing Act, FLPMA, and other Acts of the United States Congress.

Response: The County Alternative could be interpreted that way. However, when in conflict, State law cannot override Federal law.

119. Comment: The standards for the County Alternative are as vague and incomplete as those found in the RAC alternative. The County Alternative improperly places individual economic profit on a competing level with the laws and sovereignty of the United States of America. In practical terms, this provision would establish a functional impasse between your agency's resource stewardship responsibilities and the profits of the individual commodity operators. Furthermore, they call for balancing individual economic opportunities against statutory requirements, that is, they call for breaking laws. They erroneously and repeatedly claim that semi-private conservation districts are responsible for soil and water on public land. They wrongly claim that federal statutes point to livestock production as the primary use of BLM lands.

Response: The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative analyzed in an EIS is required to be within the law. The County Alternative

did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

120. Comment: The grazing guidelines proposed in the County alternative have the same debilities as the grazing guidelines proposed in the RAC alternative. They call for the use of "historic production patterns" as the basis for future production, that is, they call for local economics rather than rangeland health to govern rangeland management decisions, but these BLM standards and guidelines are meant to lead to rangeland health.

Response: The County Alternative does discuss "historic production patterns", however, it does not apply to the Resource Advisory Council (RAC) Alternative.

121. Comment: The County alternative fails to meet the requirements of 43 CFR §4180.2 (b), (d) and (e).

Response: The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative analyzed in an EIS is required to be within the law. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

122. Comment: Perhaps the most controversial aspects of the "County" Alternative are the priority that it gives to what has been described as the "human dimension" and its apparent focus on a particular "custom and culture" that "the Coalition of Arizona/New Mexico Counties" and a social and political philosophy known as the "county rights" movement seeks to preserve and protect. To be able to provide the public scrutiny required by NEPA, the public needs to know the full social, political, and ideological background of the "County" Alternative in order to understand its potential social and land use impacts. Furthermore, anytime an alternative that very specifically represents the doctrines of a particular political faction is selected as a basis for policy by an agency of the government of the United States, there is automatically a question of whether a wider precedent, with an associated wider range of impacts, is potentially being established. Such a precedent could easily be construed as constituting an endorsement. Thus, there is a legitimate need for more information, about the general nature of the "county rights" movement, than is provided in the Draft Plan/EIS. The County option is an attempt to gain control of federal lands by local governments, the premise of which is so absurd as to not warrant intelligent comment. Inclusion of the often ludicrous supporting arguments in the official record is an affront to the public, who are after all, the owners of public land.

Response: The BLM in discussion with the Counties and in the interest of having a range of alternatives, agreed to analyze the County Alternative. It should not be considered as an endorsement of any alternative prior to the Record of Decision. The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative analyzed in an EIS is required to be within the law. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

123. Comment: The County Alternative - Alternative #3 should be rejected. It does not serve the public interest, nor does it protect or enhance either the rangeland resource or environmental values. I find it to be deficient.

Response: This comment expresses an opinion and no response is required. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

124. Comment: P.2-6 Grazing Guideline; (d) and (e). Both the items again make inappropriate and incorrect reference to "allotment grazing right owner." What has always been a privilege cannot be designated a "right" simply because the coalition of Arizona & New Mexico Counties, wishes it to be such; nor can it be so decreed by the Lt. Governor.

Response: The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative analyzed in an EIS is required to be within the law. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

125. Comment: P.2-6 Statutory or Regulatory Reasoning: Item #2. The "intended primary use of BLM lands is <u>not</u> to sustain livestock production! FLPMA directs the BLM to operate under sustained and multiple use. The <u>public</u> dictates the intended primary use of <u>public</u> land; not the Coalition of Counties!

Response: The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative analyzed in an EIS is required to be within the law. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

126. Comment: P.2-6 Item #3: This document is an example of other "parties" participating in the decision-making process and the consideration of cultural economic, and social impacts in that process. Nowhere is it stated that BLM abdicate decisions to the Counties.

Response: The BLM has not abdicated the decision making responsibility.

127. Comment: P.2-6 Item #5: The County Alternative is taking liberties with the facts. The Taylor Grazing Act did <u>not</u> establish BLM lands for grazing. Instead the TGA sought "to stop injury to the public grazing lands by preventing overgrazing and soil deterioration; to provide for their orderly use, improvements and development; <u>and</u> to stabilize the livestock industry dependent upon the public range." The TGA did not intend to designate or establish public land for private benefit - grazing - only.

Response: The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative analyzed in an EIS is required to be within the law. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

128. Comment: P.2-6 The County Alternative makes improper reference to the user of the grazing privilege permittee as the "grazing right owner."

Response: The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative is required to be within the law. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

129. Comment: P.2-6 Biotic community cannot reasonably be defined by non-ecological parameters.

Response: The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

130. Comment: P.2-7 Item (b): Who is to be responsible for conducting "wildlife surveys" and the determination of population parameter of key species (whatever they are)? Not all sensitive or special status species are under State jurisdiction. What about federally listed species?

Item (d): Grazing animals may be properly considered a part of the biotic community but not humans. How does the promotion of life liberty and the pursuit of happiness become part of grazing guidelines which are supposed to focus on rangeland health? How would this be measured? Where is the standard to meet this "pie in the sky guideline?

Response: The BLM recognizes that not all aspects of the County Alternative were clear as provided in the Draft RMPA/EIS, however, the alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative is required to be within the law. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

131. Comment: P.2-7 Item 2. Minimum standards are exactly that - nowhere is it stated that minimums may not be strengthened or exceeded.

Response: No response is required, however, the County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

132. Comment: P. 2-7 Item 2. It appears that this refers to State-listed species only. USFWS has jurisdiction over federally listed species. Is the County Alternative trying to usurp management authority and place it in the hands of the state or ultimately the counties.

Response: The County Alternative was printed just as it was given to the BLM by the Coalition of Counties. The National Environmental Policy Act (NEPA) process encourages a wide range of alternatives. Not every part of each alternative analyzed in an EIS is required to be within the law. The County Alternative did not meet the Secretary of the Interior's requirements without major modifications, and it was not the BLM's preferred alternative.

133. Comment: On page 2-8 - This is taking private water rights for riparian management. This is not fair and unlawful. I respectfully request that a DEIS be prepared endorsing the multiple use of the public land with special emphasis for us all to be partners to educate everyone and especially the younger generation that our resources are our livelihood.

Response: The proposed standards and livestock grazing guidelines do not propose to take any private water rights. Should a BLM proposal to implement the standards or guidelines affect private water rights, actions consistent with State water law will be taken.

Fallback Alternative

134. Comment: While I don't find a whole lot wrong with the RAC proposal, I have several criticisms of the Fallback, because it does not mention the National Environmental Policy Act (NEPA), the Public Rangeland Improvement Act (PRIA), or the Federal Land Policy and Management Act (FLPMA). Additional criticism I have of the Fallback is that it does not give the permittee adequate time to correct a deficient standard and that it obviously isn't going to adequately fund the needed changes. Thus, it becomes an unfunded mandate. If the government is going to mandate cuts, then the government should be ready to put forth the money to help us correct this problem. With the new Range Reform, where the permittee is not allowed to show ownership on public land it almost does away with the incentive for a permittee, rancher to want to build a fence or put in a pipeline or want to cooperate on brush control. Another criticism of the Fallback alternative is that is doesn't mention the human dimension.

Response: Whether the alternatives mention NEPA, PRIA, and FLPMA or not, the laws continue to apply because the standards cannot override law. All alternatives would require range improvements to implement the prescribed grazing practices. Current laws provide for 50 percent of the funds collected for grazing livestock on the public land go to the Range Betterment Fund. Range Betterment Funds are available to assist in construction of range improvements needed for implementation of prescribed grazing practices.

135. Comment: Noticed we're way late on this thing (setting state standards and guidelines) If the state had not implemented its own standards by sometime in '97 then the Fallback standards were to have taken effect. Then they got a six month extension if I remember right which ran out in August '97, so it's now March '99. We're way far late for doing anything like this. We should have done it a lot sooner. Surprised if the Federal Government and the head office at BLM would except something at this point since we are so far in arrears.

Response: The Fallback standards and guidelines are in place and will remain until a Record of Decision is issued by the BLM State Director. The regulations did not provide a drop dead date for development of the State Director approved standards and guidelines.

136. Comment: We request that you communicate, through the proper channels of the US Department of the Interior, our interest in seeing the Office of the Secretary of the Interior conduct a full review of this Draft Plan/EIS, the process that created it, the alternatives that are presented, the concerns raised in our response, and the situation surrounding these public resources in New Mexico. Second, we ask, in recognition of the grotesque manipulation of the process leading to this absolutely indefensible Draft Plan/EIS, that this decision be removed from New Mexico and remanded back to the headquarters of the Bureau of Land Management. Third, in the clear absence of any reasonable option, we are left to strongly support what is identified in the Draft Plan/EIS as the "Fallback" Alternative, which represents the implementation of the basic standards and guidelines that have been delineated in 43 CFR 4180.

Response: In concert with the regulations in 43 CFR §4180, the Secretary of the Interior is required to approve BLM State Director developed Standards for Public Land Heath and Guidelines for Livestock Grazing Management prior to implementation.

137. Comment: The Fallback Standards and Guidelines were written for nationwide use, so are necessarily less specific and less useful than provisions for a single state. They do, however, more fully cover the elements of rangeland health than do the other alternatives, and the Fallback alternative omits the extraneous and counter-productive "custom and culture" standard of the other alternatives. We generally support the Fallback alternative, but only when "modified by the Bureau of Land Management State Director...to address local ecosystems and management practices" (43 CFR 4180.2 (b)).

Response: The Resource Advisory Council (RAC) Alternative was adjusted, based on public comment, to fully cover the elements of rangeland health as outlined in 43 CFR §4180.2.

138. Comment: The no action alternative/fallbacks should not be the baseline. The state wide E.I.S. is being done because the fallback received vigorous criticism. This makes the baseline a document that is considered unacceptable to both the state and counties.

Response: The baseline is not the Fallback Alternative. The baseline is the No Action Alternative which is "current management".

139. Comment: In general, all the alternatives read the same. You don't even bother to change the verbiage between alternatives. This is business as usual, with lip service to striving for fully-functioning ecosystems. It is how many cows can we graze before we get sued again. We don't drive model T's anymore, we don't even 286 computers anymore. Grazing on marginal public land, especially using unsustainable methods will become a thing of the past. There are ranchers that know how to do it right (i.e. the Jim Widners of the world), and I'm sure some of the BLM know what is right. It requires hard choices to make politically unpopular decisions. These alternatives are not true alternatives. None of them have convinced me that they will lead to properly functioning ecosystems. But if I have to choose one, I support the lesser of the evils, and would support the Fallback Alternative.

Response: The regulations for the development of State Director standards and guidelines came with criteria that must be met. Thus, only minimal opportunity exists to develop alternatives which result in a great difference in impacts to the physical and biological environments.

No Grazing Alternative

140. Comment: The BLM is ignoring the public's interest to put the interests of the livestock industry ahead of its responsibility to manage public lands for the public interest. This was displayed throughout the document, too many places to list individually. I get the impression the BLM is not really interested in managing lands for the public benefit unless it can do so without impairing the livestock industry's ability to earn private profit at public expense. In other words, the dominant theme is how can we graze these lands without totally trashing them, and if we can improve

them a little, so much the better. But maximizing improvement is secondary to maintaining the existing livestock industry. BLM starts with the assumption that livestock grazing will continue.

As long as this is the starting point, the BLM is not really considering a full range of possibilities. Let's say a management prescription brings about improvement in riparian areas in 50 years, but if you removed cows you might get to the same point in ten years. Why should the public have to wait fifty years to get something they could get in ten years if we removed cows? The public doesn't need cows on its lands. The entire document ignores that the quickest and easiest way to improve the land is to remove cows and sheep. Over and over again the scientific literature supports the notion that removing cattle will bring about the most rapid improvement in more areas--soils, water quality, wildlife, etc., but the BLM refuses to even acknowledge this as an option. It's a given that cows will remain. If you start with this assumption, you get certain answers.

I only know of one good evaluation of no grazing. It was done on Montana's Beaverhead NF, an area of considerably higher productively than nearly all BLM lands in New Mexico. The conclusion was that eliminating grazing would have the greatest positive impacts on public land in terms of wildlife, plant communities, ecological processes, water quality, soils, recreation, and taxpayers.

Response: The BLM is responsible for sound resource management. The Federal Land Policy & Management Act (FLPMA) directs BLM to manage resources for multiple use, and livestock grazing is one of the multiple uses. The No Grazing Alternative would not be consistent with the mandates of FLPMA nor with historical land management practices of BLM. Normally BLM does not stop the activities, but BLM makes adjustments to the activities, so the management objectives can be achieved.

<u>New Alternative</u>

141. Comment: Because the County alternative fails to acknowledge federal responsibilities and jurisdictions it is inappropriate. This leaves only the RAC Alternative or the Fallback Alternative to choose from. For a variety of reasons I suspect the Fallback Alternative is not viable to decision makers in New Mexico. Given this, we urge development of at least one more alternative that provides a wider range of choice. An alternative that provides for more rapid recovery of range condition on the public land is justified.

Response: The commentor appears to be suggesting that BLM develop an alternative that is more restrictive than the Fallback Alternative. Including this alternative would have required the BLM to go outside the range of alternatives analyzed and BLM making significant changes to it to fit the definitions of standards versus guidelines.

All the public comments were provided to the Resource Advisory Council (RAC). The RAC members represent the wide range of public land interest throughout New Mexico. The RAC met and discussed the option of going outside the range of alternatives included in the Draft RMPA/EIS. Rather than going outside the range of alternatives, the RAC made adjustments to the RAC Alternative, based on public comment and included many of the terms and concepts included in this and other comments. Thus, the RAC Alternative represents a consensus of the various interests for acceptable standards and guidelines in New Mexico. The BLM decided not to go outside the range of alternatives and make the necessary changes needed to include it because: The County and Fallback Alternatives are less and more restrictive, respectively and offer a range of alternatives on either side of the RAC Alternative. Including a fifth alternative, outside the range of the original alternatives, would delay the process and not provide the decision maker an acceptable option.

142. Comment: Our proposed modified standards and guidelines are attached. We have tried, where possible, to include measurable goals and practices. We regard the guidelines as requirements, not as recommendations, just as are the Fallback guidelines. But if the word "guideline" in New Mexico implies less than a requirement, then we would convert "guideline" to "standard".

RIPARIAN STANDARDS AND GUIDELINES

I. Give preferential consideration to fish, wildlife and plant resources dependent on

riparian areas over other resources. Other resources and activities may occur to the extent that they support or do not adversely affect riparian-dependent resources.

II. Manage riparian areas to protect the productivity and diversity of riparian-dependent resources by requiring actions within or affecting riparian areas to protect and, where applicable, improve dependent resources. Ensure soil, water, vegetation, fish and wildlife resources will be protected and enhanced prior to implementation of any project.

III. No livestock grazing shall occur in riparian/wetland communities during the summer growing season.

IV. Management practices maintain or promote sufficient residual vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability.

V. Management practices maintain or promote stream channel morphology (e.g. gradient, width/depth ratio, channel roughness and sinuosity) and functions that are appropriate to climate and landform.

VI. Facilities are located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland function.

VII. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.

ECOLOGICAL STANDARD

I. Aquatic Communities

A. Maintain at least 80% of natural shade over water. The shade can be in the form of vegetation and/or undercut banks.

B. Greater than 90% of the streambanks are stable and protected.

C. Deep dense root masses or a combination of deep dense rootmasses and rock material stabilize streambanks.

D. Less than 5% of streambanks exhibit accelerated erosion, chiseling or pocking and/or trampling.

E. Maintain the composition of sand, silt and clay within 20% of natural levels.

F. Water quality is meeting standards to protect designated uses.

G. Fish and macroinvertebrate species richness is 75% of potential.

II. Vegetative Community

A. Maintain at least 80% of the woody plant composition in three or more riparian species.

B. Maintain at least three age classes of riparian woody plants, with at least 10% of the woody plant cover in sprouts, seedlings and saplings of riparian species.

III. Wildlife Community

A. Maintain at least 90% of natural shrub and tree crown cover.

B. When and where vegetative conditions allow, work with New Mexico Game & Fish Department to reintroduce beaver if they can not naturally recolonize an area.

UPLAND STANDARDS AND GUIDELINES

I. Grazing permits will include site-specific, measurable terms and conditions.

II. Livestock and prescribed fire are managed to achieve desired vegetation as determined in allotment management plans; the goal will be to achieve Potential Natural Communities

modified (where desirable to promote diversity and wildlife habitat) to provide a mosaic of seral stages.

III. Livestock are managed to maintain a percentage ground cover vegetation, litter and rock) established for each ecological site. Until that minimal percentage is achieved, pastures must be rested or stocking rates must be decreased or season of use changed or ways (such as relocation of water and salt) must be found to redistribute livestock.

IV. Livestock are managed to produce adequate residues, including average stubble heights of 4 to 6 inches.

V. Livestock are managed to provide adequate rest (including growing-season-long rest) for vigorous plant growth as determined by the authorized officer, who will allow continuous grazing only in exceptional circumstances where it is shown to be compatible with maintenance of plant diversity.

VI. Appropriate rest from livestock grazing is provided during and after stress periods such as fire, flood and drought; specific plans for meeting drought conditions will be included in allotment management plans.

VII. Grazing systems will avoid impact on the same plants at the same time in successive years.

VIII. Livestock are managed to allow seed dissemination of desired plant species at least 1 year in 3.

IX. Only native plant species are used for seeding or planting.

X. Aggressive action will be taken to reduce invasion by exotic plants, through grazing management, fire management and by other means.

WILDLIFE STANDARDS AND GUIDELINES

I. Except in small areas near drinking sources, livestock are managed to avoid trampling that would harm soil permeability, soil organisms, cryptogamic crust and wildlife nests and habitat.

II. Livestock are managed to protect and restore the habitat of sensitive species (including those listed or proposed for listing as threatened or endangered by federal and New Mexico governments).

III. Livestock are managed in a manner compatible with other authorized uses of the public land, such as hunting, wildlife-viewing, mineral extraction and preservation of cultural sites.

Response: The comment appears to have confused the use of terms. The commentor used guideline and standard as the US Forest Service defines them rather than as the BLM defines them. For this document, and for the BLM, standards are targets in resource condition. Guidelines for grazing management are methods and practices to ensure that standards can be met or that progress can be made toward meeting that end.

Including this alternative would have required the BLM to go outside the range of alternatives analyzed and BLM making significant changes to it to fit the definitions of standards versus guidelines. All the public comments were provided to the Resource Advisory Council (RAC). The RAC members represent the wide range of public land interest throughout New Mexico. The RAC met and discussed the option of going outside the range of alternatives included in the Draft RMPA/EIS. Rather than going outside the range of alternatives, the RAC made adjustments to the RAC Alternative, based on public comment and included many of the terms and concepts included in this and other comments. Thus, the RAC Alternative represents a consensus of the various interests for acceptable standards and guidelines in New Mexico. The BLM decided not to

go outside the range of alternatives and make the necessary changes needed to include it because: The County and Fallback Alternatives are less and more restrictive, respectively and offer a range of alternatives on either side of the RAC Alternative. Including a fifth alternative, outside the range of the original alternatives, would delay the process and not provide the decision maker an acceptable option.

143. Comment: The Fallback Alternative is the best of the four options offered, but I think it does not go far enough. I myself, am for removing most, if not all, cattle and sheep from the public land of New Mexico, if for no other reason than because most of New Mexico is inappropriate habitat for the locust-like appetites of these animals. But I do recognize the political realities the decision-makers are under, and that livestock are not going to soon disappear. In that light, and in the hope of keeping the damage down, I offer some suggestions to the Resource Management Plan.

Reward livestock permittees who are willing to go beyond legally mandated changes to their livestock operations. For instance, permittees who promote habitat for and encourage threatened and endangered species to use their allotments should be rewarded with reduced or waived fees. In many cases it could be more efficient, politically and economically, to pay permittees to reduce their livestock herd size below allowable numbers, or even forgo altogether putting livestock on their allotments for short or extended periods of time. If we pay farmers to limit their planting, why can't we pay ranchers to limit their grazing? (I think wolf reintroduction would go a lot better if you had some program that recognized and rewarded the ranchers for their cooperation and support).

Allow for other-than-livestock owners to bid on allotment permits. The present system doesn't even allow open bidding among livestock owners. The most important criterion that should qualify any bidder to use public land is that the planned use will not harm the land. The more the planned use will benefit the land, the more preference that bidder should have. And when planned users are equal in benefit, preference should go to the highest bidder. It is bad enough when public land get degraded, but it is insult added to injury when it's at the taxpayers expense.

Public land that is now being leased out for livestock grazing, and land that cannot handle grazing, could be leased out to cultivators of native vegetation that could be sustainably harvested, such as cactus or medicinal plants. The provision would be that this couldn't turn into a farm. The land would have to be left, visually and ecologically, in its essential natural state.

Allow for the public or private commercial harvest of elk and deer, within sustainable limits, to be sold to the public as ecologically and nutritionally superior alternative to beef and mutton. The livestock industry won't like that but some livestock permittees might see more value in managing their allotments for harvesting game animals rather than cows. I know there would be problems in identifying whose animals are whose when they range thru multiple allotments, but it seems to me the permittees could solve that thru the formation of rancher co-operatives, or thru some formula that takes into account each permittee's contribution to the overall production of harvested animals. Other native wild animals might also be added to this harvesting strategy as their numbers warranted it, including antelope, bighorn sheep, ducks and geese. The central tenet that must not be forgotten in managing these animals or anything else we harvest, including today's livestock is that it can <u>not</u> be done at the expense of the non-harvested biological world.

With the keeping of cows out of riparian areas, you have the chance to return them to their previous functions. As their ability to slow down and hold water increases, their flood control and watershed functions will be very beneficial to humans as well as the local ecology. In time, and with our help, many extirpated species can return. Branches to major waterfowl flyways could be reestablished as streams become perennial again and wetlands increase. BLM should manage it riparian areas not only for biological health, but with an eye toward the human benefit of sustainably harvesting the fish and ducks and geese that will hopefully flourish with the increase in quality habitat.

Response: The commentor appears to be suggesting that BLM develop an alternative that is more

restrictive than the Fallback Alternative and also outside the authorities of BLM. Including this alternative would have required the BLM to go outside the range of alternatives analyzed and BLM making significant changes to it to fit the definitions of standards versus guidelines.

All the public comments were provided to the Resource Advisory Council (RAC). The RAC members represent the wide range of public land interest throughout New Mexico. The RAC met and discussed the option of going outside the range of alternatives included in the Draft RMPA/EIS. Rather than going outside the range of alternatives, the RAC made adjustments to the RAC Alternative, based on public comment and included many of the terms and concepts included in this and other comments. Thus, the RAC Alternative represents a consensus of the various interests for acceptable standards and guidelines in New Mexico. The BLM decided not to go outside the range of alternatives and make the necessary changes needed to include it because: The County and Fallback Alternatives are less and more restrictive, respectively and offer a range of alternatives on either side of the RAC Alternative. Including a fifth alternative, outside the range of the original alternatives, would delay the process and not provide the decision maker an acceptable option.

CHAPTER 3 - EXISTING ENVIRONMENT

Major Land Resource Areas

144. Comment: The MLRA Map on page 3-4 is small and not detailed enough to tell which area I am in.

Response: The map on page 3-4 of the Draft RMPA/EIS was not meant to be highly detailed. More detailed maps are available from the BLM Field Offices or from the Natural Resources Conservation Service.

145. Comment: On page 3-1, Biome types: Not all pinon-juniper (PJ) types are considered woodlands. Many PJ sites are grassland sites that have been invaded with PJ.

Response: The BLM agrees that piñon-juniper (PJ) has invaded some grassland areas. However, the purpose of this statement is to merely describe the existing vegetative communities for purposes of analysis.

146. Comment: The Map and description of the MLRA's are excellent. It would seem to me that land in fair or better ecological condition for its ecological site with stable or upward trend would in itself represent a standard for Public Land Health.

Response: This comment was provided to the Resource Advisory Council and Counties. They chose not to consider it as a separate standard.

147. Comment: The Draft Plan/EIS is deficient in defining such environmental baseline conditions, particularly in the all important areas of habitat required for and impacts on threatened, endangered, and sensitive species. For example, for each of the Major Land Resource Areas addressed in the Draft Plan/EIS, Chapter 3, Affected Environment, grudgingly contains no more than a single terse paragraph on "potential natural vegetation." For an environmental analysis that is supposed to focus on standards and guidelines for proposed grazing activities, information on native vegetation is clearly central to both the assessment of cumulative impacts and the proper development of those standards and guidelines. Especially in this context, the depth of coverage included in the Draft Plan/EIS is simply inadequate. We must also note that, for absolutely every one of the nine Major Land Resource Areas, even this insufficient level of discussion is followed by a subsequent statement admitting the disruption and degradation of natural vegetation communities "due to past land use practices." Yet, the Draft Plan/EIS appears to be devoid of any further substantive discussion of these "past land use practices;" what they were; how recently they were discontinued, if they actually have been discontinued; how they substantively differ from current or proposed practices, if they differ; what their specific impact mechanisms were; or what measures have been implemented to ensure that these impact mechanisms have been conclusively mitigated.

Response: Due to the Statewide scope of this document, it precludes in depth descriptions of vegetation and related management issues. The BLM has not put together information on what various practices have impacted the land. Such an inventory of practices would be subject to conjecture, time consuming and may be of little value in developing

future management practices. After standards are determined, BLM will evaluate what current practices are adversely impacting land conditions.

148. Comment: p. 3-8. Just make note that you state for MLRA unit 42 (southern desertic basins, plains, etc) that "scarce surface water and low precipitation are severe limitations to the use of the area for range", and 50% of the area is desert. I work with a BLM range con from eastern Oregon, and he can not believe the level of stocking he sees on BLM rangelands in this area. This is the Chihuahuan Desert that has been significantly converted from grasslands to scrublands. What ecologist would support year-round grazing where precipitation is frequently < 8 a year?

Response: The sentence on page 3-8 of the Draft RMPA/EIS for MLRA 42, referred to in the comment, has been removed from the document in this Proposed RMPA/Final EIS document. The use and definition of the word "range" is not clear. Range is a type of land. Range or rangelands are lands on which the native vegetation (climax or natural potential) is predominately grasses, grass-like plants, forbs or shrubs suitable for grazing or browse use. Rangelands may consist of natural grassland, savannas, shrublands, most deserts, alpine communities, coastal marshes and wet meadows. The lack of surface water and low precipitation do not limit an area from being considered a rangeland.

One of the characteristics of the Chihuahuan Desert is a short growing season. Where there is a short growing season and yearlong livestock use, there is a built in growing season deferment for a majority of the plants in the allotment. Providing there is a variety of plants, a minimum of steep terrain, numerous water points, and proper stocking, yearlong grazing can provide a suitable grazing program.

Grazing on public land will be subject to monitoring to determine whether the standards are maintained. Where grazing is contributing to resource degradation in excess to the thresholds prescribed by the standards, the authorized officer will take appropriate action as soon a practicable but not later than the start of the next grazing year.

<u>Vegetation</u>

149. Comment: Concerned about a very little or lack of good research information about riparian areas. There is very little research available about those areas. There is a need. We have a good riparian area that the BLM manages in Lincoln County that represents an excellent opportunity for such research.

Response: The literature has abundant information regarding many aspects of riparian areas. However, additional information regarding site-specific problems and questions is always desirable. Monitoring studies to document success stories are one way to accomplish the collection of information.

150. Comment: Statements that the cattle are causing the problem in riparian areas are not backed up by science and this should be deleted or science provided.

Response: The commentor did not cite the specific statement(s) in question, upon which to base a specific response. There is a body of scientific literature, which is available through bibliographic reference services, which document affects of livestock grazing to riparian areas. The BLM, by experience, has found that livestock grazing can affect riparian areas. The RMPA/EIS mentions other factors beyond livestock grazing which may contribute to riparian degradation.

151. Comment: There is substantial evidence that large areas of the Chihuahuan desert currently managed by the BLM have experienced a change in dominant vegetation type over the past 100 years. Vegetation has shifted from a largely open grassland to a largely shrub dominated system. While both systems may be comprised largely of native species they are very different systems. The exact causes of this shift are not known, but it is clear that human activities and the management practiced over the last 100 years is at least partially responsible, as Holechek, Pieper, and Herbel state in Range Management: Principles and Practices (1995): "Overgrazing, cessation of fire, climatic change, and seed dissemination by domestic animals [are] all ... possible causes. Probably a combination of these factors explains the [change]. Regardless of the cause, brush covers a large area that was originally grassland." This change in vegetation is also mentioned briefly in several places in the draft EIS statement (i.e., page 3-9 and 3-19). It should be noted that along with the shift in vegetation, these areas have generally suffered severe soil degradation. My

concern is that the draft EIS does not clearly address the issue of whether these areas should be managed to restore them to their original grassland condition or to maximize the range conditions of the present vegetation type.

All of the alternatives include "vegetation enhancement" of these areas by fire-based, chemical, and/or mechanical brush removal as a way to improve range conditions. Is the restoration of grasslands in currently shrub-dominated portions of the Chihuahuan desert a primary management goal? Is it realistic to expect that grassland systems dominated by native species can be restored to large areas with degraded soils just by killing the shrubs? Page 3-13 suggests that the BLM seeds only about 100 acres annually in the entire state. Does the New Mexico BLM office have the financial resources to undertake a restoration project of this size and scope? Are there other management techniques that could achieve this goal? Or, is it more realistic to generally manage these areas as shrub-dominated systems, and maximize their quality as such? It was not clear from reading the draft EIS what the BLM position on these issues was for any of the alternatives, or just how the alternatives differed regarding these issues.

Many of these same questions arise about other, non-Chihuahuan, land areas in the state managed by the BLM. Clarification about whether or not restoration of "original" vegetation type is a management goal, and if so, what sort of priority this goal has, might help to keep management strategies more focused.

Response: The BLM recognizes that historical records indicate that much of the public land in southern New Mexico has changed from a grassland to a shrubland. Accordingly, accelerated erosion may have modified the soils. In some cases, the site has passed a threshold and the potential has been modified. Where brush has encroached it must be controlled prior to the original vegetation returning.

The BLM is presently discussing the development of Ecological Site Descriptions in partnership with the Natural Resources Conservation Services and other rangeland institutions in New Mexico. The site descriptions are expected to include elements that BLM will use for interpretations of the standards so the sites will provide for ecological processes to function, protection of the site from accelerated erosion, and thriving native plant and animal populations. Through this approach, the BLM can assure its foundation for land management is based on sound science and includes peer review.

The Resource Management Plans will establish the desired plant community (DPC). The DPC must be in concert with the standard, but the standard does not mandate a specific plant community.

152. Comment: Page 3-13 states: "Based on existing inventory data, lotic [running water] riparian areas on public land in New Mexico total 427 miles, containing 13,285 acres of riparian habitat located in 244 stream segments." Page 3-17 states: "Comparatively, the number of miles of perennial streams on public land is small, only 433 (USDI, BLM 1997 Public Land Statistics). There are no estimates of the miles of ephemeral channels on public land." Based on these statements, the riparian segments are apparently only perennial stream segments.

The DEIS should provide a discussion of stream types that were analyzed and omitted from analysis (i.e., intermittent), discuss the rationale for this decision, and provide a comparison of the biological and functional nature of the different stream types, to give the reader some idea of the nature and extent of riparian resources that may have been excluded from analysis.

Response: The statement on page 3-17 of the Draft RMPA/EIS "Comparatively, the number of miles of perennial streams on public land is small, only 433 (USDI, BLM 1997 Public Land Statistics)" is a misstatement. The term "perennial streams" should read "riparian areas" instead. A perennial stream is normally associated with a riparian area, but the reverse is not always true. For example, riparian area may be associated with an intermittent stream. Where ephemeral streams have associated riparian areas, data is provided. The BLM does not collect data on ephemeral streams without riparian areas. Therefore, data is not available for non-riparian steams upon which to base an additional analysis.

The difference in the stream miles 427 on page 3-13 and 433 miles on page 3-17 of the Draft RMPA/EIS is because of the difference in the years and method of data collection. This is often due to BLM land

exchanges that occur over time or updated information over time.

153. Comment: The Department is concerned about riparian, aquatic and wetland habitats because they are essential for the survival of a majority of the species of wildlife found in the state. The quality (NMWQCC 1992) and quantity (Dahl 1990; Hink and Ohmart 1984) of these habitats have been significantly diminished or degraded. Of the 867 species of vertebrates known to occur in New Mexico, 479 (55%) rely wholly or in part on aquatic, wetland or riparian habitat for their survival. Fifty-one of the 96 species that are listed by the state as threatened or endangered are associated with these habitats (NMGF 1997).

Response: The figures are Statewide and not limited to public land. They may, however, increase the readers awareness of the importance of riparian habitat on a Statewide basis.

154. Comment: p. 3-15. Provide maps for tables 3-4, 3-5. Which MLRA, which field office, something?

Response: Maps of riparian zones on a Statewide scale would not be readable. The information is available at the BLM Field Offices.

Soils

155. Comment: The terminology on 3-16, I can't even pronounce it, like a-r-i-d-i-s-o-l-s, can't make heads or tails out of it. It's too scientific. Using meters instead of feet. Should talk about inches of rainfall. So I was really kind of unhappy about how it was put together, like it was trying to go over our heads and not be able to understand what was going on.

Response: There was no attempt to go over anyone's head with scientific terms in the document. Soils classification names have been evolving for several decades. Each part of a name has a precise meaning about a particular soil property such as depth of soil, amount of clay, moisture availability during the year, or the amount of gravel and larger rock fragments.

English measurement units, feet and inches, are used by most of us in our daily lives and will continue to be used for a long time. Because of their mathematical ease of use, metric units are often the official units used to store, manipulate, and exchange data on both National and international levels. The Major Land Resource Area (MLRA) program is National and international in scope, and the use of metric units of measurement is appropriate.

156. Comment: On page 3 -17, Soil Erosion second paragraph "Natural litter...): Please note that Alfisols, Aridisols, Entisols almost always have less than 1% organic matter in the top 10 inches of the soil surface.

Response: Your comment is well taken. No response is required.

Water

157. Comment: There's a lot of talk about water rights. Wondering if those had gone through the state engineer. A lot of time people think they know about water rights when they don't. Hope that all of the issues that pertain to water rights are checked over by a water rights expert. I have always thought that there were actually federal water rights that belonged to the federal land and were reserved for that but then I don't know the extent of it. We have more rights than we have water. Just make sure that water right thing is square.

Response: In the Final Regulations published on February 22, 1995, 43 CFR §4320.3-9 states the following regarding water rights for the purpose of livestock grazing on public land:

> *Any right acquired on or after August 21, 1995 to use water on public land for the purpose of livestock watering on public land shall be acquired, perfected, maintained and administered under the substantive and procedural laws of the State within which such land is located. To the extent allowed by the law of the State within which the land is located, any such water right shall be acquired, perfected, maintained, and administered in the name of the United States.*

Although the water rights language is a part of the regulations that established the standards and

guidelines effort, water rights section and the standards and guidelines sections are independent of each other. The implementation of these standards and guidelines will not affect water rights. There are water rights tied to public land and except for a few limited instances of Federal Reserved Water Rights claims, the Office of the State Engineer administers all water rights in the State. However, even the Federal Reserve Water Right claims are subject to verification through State Court conducted water right adjudications. This is now occurring in many water basins within the State.

158. Comment: As a result of a lawsuit filed by two environmental groups against the U.S. Environmental Protection agency, the NM Environment Department's Surface Water Quality Bureau (SWQB) has developed a schedule of monitoring all streams and rivers in New Mexico and developing Total Maximum Daily Loads (TMDLs) as appropriate. As part of this process, the State performs water quality monitoring, outlines current water quality conditions, determines load reductions needed, outlines sources of pollutants, and submits implementation plans to bring affected streams into compliance. The SWQB is monitoring New Mexico's streams on a five-year rotating schedule; the Bureau encourages and welcomes any applicable input from BLM to this process.

Because water quality is directly related to the conditions of watersheds and riparian areas, the NMED supports best management practices that will improve and protect these resources.

Response: Thank you for the invitation to participate. No response required.

159. Comment: On Water issues, reference is made to the New Mexico Water Quality Control Commission 1998 305 B report. It appears that the draft to the 305 B report was used to make those references because there were several amendments made to the final 305 report that invalidate the references made in the DEIS.

Response: The 1998 NMWQCC 305(b) Report had not been published when the RMPA/EIS was drafted. The water section of the Proposed RMPA/Final EIS has now been updated based on the new Report.

160. Comment: Chapter 3 - Affected Environment P. 3-1 WATER Page 3-17 While selected statements from various New Mexico's WQCC reports indicate livestock grazing as a major source of NPS pollution. These statements fail to disclose some major findings of the WQCC, The Coalition suggests incorporating the following from the 1998 305(b)report:

"Chapter 6, page 109:Nonpoint Source Management Program Activities: Rangeland Agriculture"

> **"In New Mexico rangeland NPS pollution in the form of turbidity and siltation is often the product of natural conditions associated with arid land climates. Most of New Mexico receives 15 inches or less of annual precipitation on highly erodible soils. This precipitation typically arrives in July and August in the form of torrential downpours following two to three months of little to no rainfall. Scarce vegetation in the form of grasses and forbs allows overland flows to strip soils from the surface. It has now been recognized that management of watersheds for control of rangeland NPS pollutants begins with the natural generation as a baseline for evaluation of anthropogenic contributions.**
>
> **"Efforts to reduce rangeland NPS pollution have focused on grazing practices instead of vegetation management. Years of livestock numbers reductions and implementation of grazing BMPs have had little to no effect on grazing lands NPS pollution. The recognition that a 90% reduction in livestock numbers has brought little to no improvement has prompted a reevaluation of the source of NPS pollution on grazing lands.**
>
> **"Fire suppression allowing woody plant species invasion is the primary cause of surface erosion in the woodland and lower elevation grasslands. In the ponderosa pine forests, fire suppression has fostered an increase in tree densities from 19 to 50 trees per acre to highs of 3000 trees per acre resulting in an average of 30% reduction of**

surface flows and restriction of infiltration to ground waters.

"In the early 1980's, the Soil and Water Conservation Division promulgated BMPs designed to address the issues of woody invasion, diminishing grasses and forbs, reduction of surface flows and groundwater recharge. Federal and State land management agencies have not successfully implemented many of these BMPs."

Response: The proposed addition is actually found starting on page 100 of the 1998 305(b) Report. The comment is not a complete quote, but used portions and left out portions of what was stated in the Report. The Water section has been modified to include the complete quote and additional information that helps put water quality and implementation of BMPs into an acceptable prospective.

161. Comment: Due to the impacts to riparian areas on BLM lands that result from conditions of the watershed under Forest Service administered lands, include the following:

"Chapter 6, page 110: Nonpoint Source Management Program Activities: Silviculture"

"Areas on Forest Service Lands identified by the USFS as suitable for timber harvesting occupy roughly 10 per cent of the forested lands. Pre-1990 harvesting activities were disturbing about one half of one percent of those lands. BMPs were modified at that time to reduce impacts to water quality. Fire suppression on all Forest Service lands over the last 100 years has created conditions that favor large scale catastrophic wildfires and an average 30 per cent reduction of high quality water delivery.

"These reductions of water delivery from the watersheds has also contributed to exceedence of water quality standards in the lower reaches of New Mexico's rivers. As the flows of higher quality water is reduced, numeric concentrations of point and non point source pollutants increase."

Response: This comment is directed to riparian areas and is one part of the variety of upstream impacts which may affect BLM riparian areas, as already discussed in the last paragraph of the riparian section on page 3-16 of the Draft RMPA/EIS. Since the quote itself deals with water quality and not riparian zone health, it was inserted into the water section of the Proposed RMPA/Final EIS.

162. Comment: The memorandum of understanding between the BLM and New Mexico Environment Department, to oversee water issues in the state, is legally questionable.

Response: The Memorandum of Understanding is created under the authority of the Clean Water Act (208(a)(2), 319(K), 304(k)(1) and 502(4)), several Executive Orders and NMED's authority. Precise definitions are listed in 40 CFR 130.2. The MOU has nothing to do with the BLM overseeing water issues in the State. The MOU primarily states that BLM is responsible for managing activities on public land in a manner that meets water quality standards.

<u>Grazing Administration</u>

163. Comment: It is stated that between 287 and 480 of the 2193 allotments in New Mexico would not meet standards (a relatively small percentage according to the writer). The upper percentage figure for not meeting standards would be 22% which is not "minor". The statistic on page 3-20 that 23% of public land are considered in poor condition bare this out. When nearly a quarter of public land are in poor condition I would find it difficult to call this matter "insignificant".

Response: The BLM is concerned about the health of the rangelands and has implemented over the past decades programs to improve the public land. The statistic on page 3-20 of the Draft RMPA/EIS (23 percent of the public land in poor condition) is part of the historical record showing the change over time in the public land in New Mexico as result of management. The 23 percent is taken from the 1986 report of Public Land Statistics Report. The

improvement is seen in the 1996 Public Land Statistics report on page 3-21 of the Draft RMPA/EIS, where poor condition range (now called early seral stage) decreased to 14 percent. The range condition classes used by BLM are at times misunderstood. The Society for Range Management (1989) defined range condition as "the present state of vegetation of a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax plant community for that site." The Summary has been modified by removing the phrase "(a relatively small percent)".

164. Comment: Throughout the document there are references to data in terms of the numbers of allotments that would be affected and those allotments that don't meet the standards and guidelines. There are references to two different reports on the breakout of current and past range condition classifications. However, there are no maps, and not a good description of where these areas are. When the various field offices are queried of where are the allotments are located, where is the real data the answer unbelievably are: 1. these numbers are made up or 2. these are just professional guesses. I don't see how as assessment can be made in an EIS based on very little or no data, especially when you try to have extensive economic analysis. To quote a past presidential candidate, that's "voodoo economics."

Response: The reference to range condition reports and acres in various conditions were provided as background for the existing environment. Maps were not provided because BLM did not historically develop Statewide maps on range condition. Additionally, it is doubtful that the detail would be meaningful at the scale that would be in the document.

The BLM recognizes that it does not have an inventory specific to the various standards proposed in the various alternatives. Range condition reports cannot be cross walked into an assessment of meeting the different standards without a great deal of judgment. Therefore, the BLM requested that the Field Offices use their best judgment as to the number of acres meeting the standards and the number of allotments that would be impacted by the guidelines. Because the assessments are not directly backed by a field inventory, BLM did not map the areas.

The economics section recognizes that the number of allotments that would be affected was estimated and implementation of the guidelines and resulting impacts cannot be accurately determined at this time. Therefore, the analysis includes economic impacts from a number of different scenarios that might occur on a given allotment.

165. Comment: Seasonal grazing may not work on some ranches. In Eddy County the best economic way to go is with a cow and calf operation.

Response: The BLM recognizes that not one grazing system is suitable for all areas. This RMPA/EIS is a Statewide document and specifics by County were not developed.

166. Comment: Lincoln County is a member of the New Mexico/Arizona Coalition of counties and as such has supported the County Alternative, however in reviewing carefully the document that has been presented, the public land council does find the RAC alternative to be acceptable. The Lincoln County Public Land Use Advisory Council supports livestock grazing and industry and individuals that are involved in that industry, but also strongly supports the multiple use concept in the use of our public land. There are areas in Lincoln County that have basically never been grazed by livestock, and some of those areas are in very deplorable ecological condition. So for many reasons support grazing, managed grazing, as a viable tool in managing the public land.

Response: No response required.

167. Comment: How many corporate ranches are there in New Mexico, or do you have a percentage of them versus the percentage of family-owned ranches? Maybe it's in there, but I couldn't find it in the book.

Response: The RMPA/EIS does not display the percentage of family owned ranches vs the number of corporate owned ranches. The grazing regulations and laws authorize both to graze on the public land. The existing BLM data system does not distinguish between the two. The numbers were not relevant to the preparation of the RMPA/EIS.

168. Comment: In Lincoln County 18 percent is managed by the BLM. The use of public land to graze is very important for the citizens of Lincoln

County to keep the rural aesthetics alive and well. BLM lands must be maintained at or above the current levels to protect Lincoln County's economic base. Increased restrictions and encumbrances upon current uses of the land and property rights will hurt the economic base resulting in a loss of community stability and slow or no economic growth in that area. As for the options on the EIS, I don't prefer one over the other. The County one sounds good, the one that BLM prescribes sounds fine. I think we could have more cooperation among one another and help one another in the things that we do. As for the options on the EIS, I don't prefer one over the other. The County one sounds good, the one that BLM prescribes sounds fine. I think we could have more cooperation among one another and help one another in the things that we do.

Response: No response required.

169. Comment: On page 3-23 in the 2ND column in the next to last sentence it is suggested that the following words be inserted (words to be inserted are all caps.

When designing a grazing system, many factors must be considered, including the needs of the allotment, fencing, cost, stocking rate, IMPACT ON WILDLIFE, RECREATION USE, water, salt, utilization level desired, and management objectives, among other considerations.

Response: Although not specifically stated in this sentence, other resource programs such as wildlife are considered when developing grazing systems. The preceding paragraph mentions identifying goals and objectives from other activity plans (e.g., Habitat Management Plans) when developing grazing activity plans.

170. Comment: On page 3-23 in the 2ND column in the last sentence it states: "Continuous grazing should not be discounted as long as objectives can be met. (Bedell, 1992)" Maybe continuous grazing works in Missouri, but where in New Mexico is it feasible?

Response: The RMPA/EIS does not choose one grazing system over another, but presents information from various sources. There are a number of grazing systems available. Periods of deferment are important to plant health. The grazing system must be developed to meet the needs of the resource, but also tailored to fit the livestock operation. Where there is a short growing season and yearlong use, there is a built in deferment for a majority of the plants in the allotment. Providing there is a variety of plants, a minimum of steep terrain, numerous water points, and proper stocking, yearlong grazing can provide a suitable grazing program.

171. Comment: A further concern comes from the disclosure on pages 3-22 and 3-23 that nearly 53%of the total acres of public land in New Mexico, are in allotments classified as "Improve or I Category." This means that more than 50% of the acres in grazing allotments in New Mexico have range conditions that are unsatisfactory! I would translate this to mean that existing management would not meet standards and guidelines designed to improve range condition. This concern is further substantiated with the data on page 3-20 that explain that in 1986, 71% of the rangelands in New Mexico were either fair or poor. The discussion on page 3-20 and 3-21 concerning changing the reporting categories for range condition to terms such as PNC, late seral, mid seral, and early seral does not rectify or alter the conclusion that much of New Mexico's public rangelands are in less than good condition. In the FEIS the Institute urges the BLM to better address the magnitude of poor range conditions and detail how the preferred Alternative will alleviate those conditions.

Response: The selective management approach (M, I, and C) is described in part on pages 3-22 and 3-23 of the Draft RMPA/EIS. It was designed to aid BLM's overall responsibility to manage public land under the principles of multiple use and sustained yield. The grazing program is one of many resources or uses involved. The criteria was to assist in identifying allotments with the highest priority for public investment. The fact that allotments are in the "I" category does not necessarily mean that lands are not meeting the standard or that the lands are in serious peril. The term "range condition" or ecological condition is an ecological rating and means the present state of vegetation of a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax plant

community for that site. A proposal was made by the Range Inventory Standardization Committee (1980) to drop the excellent, good, fair, and poor and replace them with ecological terms,(i.e., mid seral, late seral and so on). The change in terminology, from "poor condition" to "early seral stage", etc., was made to show that it is an ecological rating and not a grazing value. The BLM uses the range site guides developed by the Natural Resources Conservation Service (formerly the Soil Conservation Service) to map range sites and determine the range or ecological condition on each range site on public land.

As shown on page 3-21 of the Draft RMPA/EIS, the range condition of public land has improved. These conditions have benefited all resources. As a multiple use agency, the BLM has worked at providing for the varying needs of other resources such as wildlife. This was pointed out on that same page of the Draft RMPA/EIS regarding range condition, in that the "PNC (or excellent condition) is not always the desired condition for the public land, since it may not always provide the best mix of vegetation for desired biological and social values...Maximum vegetation diversity, often the most desirable objective for livestock and some species of wildlife, occurs frequently not at climax but in the mid-to late seral (fair to good condition) stages." A report from Texas A&M University, by Allan McGinty and Larry D. White made a similar observation, stating "the optimum range condition for profitable and sustainable livestock or wildlife grazing may differ significantly from the ecological definition of excellent condition rangeland...For example, sustained cattle productivity is generally best achieved with good to excellent condition range...White-tailed deer production is generally best on range in fair to good condition...bobwhite quail will vary from poor to good condition, depending on location in the state (Texas)." The needs of each resource vary. Goals and objectives of the different resources are identified in the Resource Management Plans (RMPs) of each Field Office.

172. Comment: The discussion on page 3-20 concerning the evidence that rangelands in New Mexico are improving is misleading. The discussion is oriented to changing the rangeland condition to better support grazing livestock. The discussion on brush control, sagebrush thinning, and general conversion to grasses is irrelevant to the topic of range condition in the broad sense. For instance, wildlife need a wide diversity of plants and plant structure. A healthy and productive rangeland is one that has a broad diversity of vegetative components (see paragraph 1 on page 3-21). The goal of good range management should be to recognize this and manage for it. It is recommended that the discussion on range condition in the FEIS be altered to recognize values of the public rangelands to uses other than livestock grazing.

Response: The commentor is apparently confusing a livestock forage rating system with a land condition rating system. Range condition is defined as the present state of vegetation of a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax for the site. Range condition is an ecological rating and is not a forage condition rating. "Range" is a type of land and is not the same as "livestock grazing". Livestock grazing is a common use of rangelands.

173. Comment: Table 3-6 on page 3-22 <u>should</u> include the <u>available</u> AUM's of forage for the McGregor Range portion of applicable field office administered areas. This is controversial and critical to the "Human Dimension" and survival of several 3th and 4th generation ranching families in this area.

Response: McGregor Range land is withdrawn and used for military purposes. It is administered cooperatively by the Military and BLM through a Memorandum of Understanding and handled in a different manner than other public land. Grazing is authorized annually on an open bid basis. Standards and Guidelines will apply and will be implemented to the extent possible in line with the manner in which the land is managed by BLM and the Military.

174. Comment: P. 3-20: You reference 1986 and 1995/1996 reports on grazing conditions. Give us maps of where the Excellent, good, fair, etc allotments are located.

Response: BLM has not compiled such a map, therefore, no map is provided in the RMPA/EIS.

175. Comment: P. 3-22. why is McGregor Range excluded? From my extensive travels up there, it too has some very poor range conditions (extensive invasion of snakeweed, low grass cover, wide distances between grass/herbaceous cover, evidence of soil erosion). These are public land. Are you saying management of these lands are exempt from any S&G?

Response: McGregor Range land is withdrawn and used for military purposes. They are administered cooperatively by the Military and BLM through a Memorandum of Understanding and handled in a different manner than the other public land. Grazing is authorized annually on an open bid basis. S&Gs will apply and will be implemented to the extent possible in line with the manner in which the land is managed by BLM and the Military.

176. Comment: P. 3-23. You list 2193 allotments in the state, but only AMPs for 13% (290 allotments). I would have thought the development of AMPs is an important aspect of management. How do you explain this? On a former forest I worked on, every single allotment had an AMP and that permittee had to come in ever year for an evaluation, etc.

Response: Allotment Management Plans (AMPs) are discretionary. The basic authority for AMPs is found in the Federal Land Policy and Management Act of 1976 (FLPMA) and the Public Rangelands Improvement Act of 1978 (PRIA). Section 402 (d) of FLPMA as amended by Section 8 of PRIA, provides that where AMPs are not completed or where AMPs are not necessary, the terms and conditions shall be incorporated into permits/leases. Additionally the present regulations recognize AMP's "or other activity plans intended to serve as the functional equivalent of allotment management plans may be developed...."

177. Comment: If BLM would stock the range below the carrying capacity of a drought year then this would allow excess forage to improve itself during normal years. Page 3-23 tallies lands classified (I) where the present range condition is unsatisfactory at 6 3/4 million acres. Therefore, I reject the present management.

Response: As shown in the Environmental Consequences for each alternative under the Grazing Administration section, grazing use on public land fluctuates due to factors such as the price of livestock and weather conditions. The active grazing preference attached to the public land in New Mexico is 1,891,665 AUMs. Yet, in 1996, which was a low rainfall year, only 1,502,516 AUMs were authorized for grazing. The No Action (Current Management) Alternative was provided as a baseline, but can not be selected by the decision maker because it does not meet the requirements of 43 CFR §4180.

Wildlife

178. Comment: It is not clear if Largo Canyon is willow flycatcher habitat or not, and if we will have to get out of the Largo because of the willow flycatcher.

Response: This document was not designed to provide site-specific management information. Specific locations of endangered species habitat and management of those habitats will be developed through site-specific assessments.

179. Comment: Elk are not native to the New Mexico ground. There is literally elk at our back doors now and increasing in numbers, and I feel they have done more damage to the land than cows or deer. Somebody has got to take responsibility for the elk. The two agencies (NM Department of Game & Fish and BLM) need to work together and more needs to be discussed about managing the wildlife because they can do as much damage as cattle.

Response: BLM is responsible for habitat management for a multiple of uses. Game population management is the responsibility of the New Mexico Department of Game and Fish (NMDGF). When habitat degradation occurs from wildlife, the BLM makes management recommendations addressing the problems to the NMDGF. This concern is addressed on page 3-25 of the Draft RMPA/EIS document under Wildlife.

180. Comment: I believe the Endangered Species Act was over done in this document. It has already been addressed in other EIS documents. All that needed to be done was cite it in this document. It gets a lot of play in this document when I believe it doesn't need to be there.

Response: The BLM is required by the National Environmental Policy Act (NEPA) to assess the impacts of the alternatives to endangered species.

181. Comment: On page 3-25 Antelope are not cyclic, then on page 3-26 there are less hunters in 1998 than 1988 and 1978. You should add competition with elk. On page 3-27 "Stellar's jay" should be "Steller's jay" and "Coranado National Forest" should be "Coronado National Forest".

Response: The commentor is correct that antelope are not cyclic, but population estimates appear to fluctuate, perhaps due to predation, habitat conditions such as drought, and hunter harvest. The other suggested changes were made to the document.

182. Comment: Reconsider the stated goal in Special Status Species Habitat Management; "Provide protection and recovery for all federal and state listed species. Manage occupied and potential habitat for federal and state-listed species an public land to maintain or enhance populations. Manage habitat for federal candidate species to avoid degrading habitat and further listing by either state or federal governments while allowing for mineral production and development, livestock grazing and other uses.

We believe the goal needs parameters to prevent recurrence of questionable actions similar to the New Mexico history of the Black (or Mexican) Duck, Ibex, and Mouflon.

Response: The referenced statement is the policy of the BLM nationwide and applies to all BLM activities regardless of the outcome of the Standards and Guidelines RMPA/EIS. The BLM understands and shares the concern regarding directing management attention toward species that do not warrant additional consideration such as the Mexican duck. Due to the complex nature of biological resources, information is often difficult and expensive to acquire. However, information regarding species is often lacking and leads BLM to direct management activities toward these species. The BLM finds that this attention often leads to a better understanding of their status and possibly a reduction in management attention. Conversely, it is much safer for BLM and the public to provide early attention to these species in an effort to retain greater flexibility for public land uses rather than to wait until the species becomes Federally- listed.

183. Comment: The Department recognizes that grazing can have numerous and complex effects on soil, water, vegetation and wildlife resources. The DEIS refers to conducting future extensive and widespread brush control and herbicide projects in shinnery oak, mesquite, juniper and big sage communities. Between 1989 and 1992, BLM conducted an average of over 20,000 acres of brush control a year. These activities can have profound effects on wildlife populations with specialized habitat requirements. To assist the BLM in addressing these concerns, we have included several lists of Threatened, Endangered and Sensitive species potentially adversely impacted by grazing and range improvement practices such as brush control on juniper, big sage, mesquite and shinnery oak. The Department would like to continue to work closely with the BLM on AMP's that could impact wildlife resources.

Response: The BLM intends to continue working closely with the New Mexico Department of Game and Fish in the development of activity plans for public land. These activity plans will help insure the standards are met and consideration given to special status species. Thank you for the lists of special species included in your comment.

184. Comment: P. 3-25, WILDLIFE: What do you mean by public land (all federal lands)? Be specific, and try to partition the population for BLM lands. Distributions would probably be quite different, esp for elf, bear, BH sheep.

Response: The Federal Land Policy and Management Act (FLPMA) defines land managed by BLM as "public land". Therefore, in BLM documents such as

this RMPA/EIS, the term "public land" refers to BLM land. Animal populations are estimates of those on BLM land.

185. Comment: P. 3-26. You might consider adding oryx. This species has become a major issue. Under Wildlife Habitat by MLRA, 36- give some detail on the data that shows elk are competing with livestock for forage, or is this just opinion?

Response: Data are available along with professional opinion in areas where elk numbers have increased. The Forest Service and BLM have areas where livestock have been removed and the elk are overutilizing the vegetation to where riparian and upland watersheds are degrading. Report 47 "Forage Utilization by Elk and Livestock in Selected Riparian Areas in the Gila National Forest" by Michael Treadaway, V. W. Howard, Jr. Chris Allison, M. Karl Wood, and Jon Boren is one source of such data.

186. Comment: P. 3-27, MLRA 39. Change western goshawk to northern goshawk. No such thing as western goshawk. Give fuller description of conifer forests. Most of species mentioned are associated with ponderosa pine. Mexican spotted owls infrequently associated with Pipo forests.

Response: Western goshawk has been changed to northern goshawk. This is a general list to give the reader an idea of what may potentially occur within a certain area. Overall, the BLM has very little acreage in this Major Land Resource Area.

187. Comment: P. 3-28. For mammals associated with MLRA 42, add spotted ground squirrel and black-tailed prairie dog.

Response: The spotted ground squirrel and black-tailed prairie dog have been added.

188. Comment: P. 3-29. Change common raven to Chihuahuan raven, thrasher should either be long-billed or Crissal thrasher. And warblers not especially associated with this MLRA, delete.

Response: The change from common raven to Chihuahuan raven has been made. Also, the insert of Crissal thrasher and the deletion of warblers has been made.

189. Comment: P. 3-30. MLRA 77. Delete black-footed ferret, I seriously doubt they are here. The bird species listed under riparian habitat areas are more associated with lentic systems (wetlands). You will not find rails and gulls and grebes in riparian areas.

Response: The black-footed ferret has been deleted from the paragraph.

190. Comment: On page 3-16 I feel elk should be added and not just heavy concentrations of livestock. As you can tell by the numbers on page 3-25 elk are on the increase and it has been proven that they too can also damage riparian areas.

Response: Wildlife has been added.

191. Comment: On page 3-27 in reference to antelope in the Farmington area. The fact is antelope were never present in large numbers or any at all on Ensenada Mesa, now just because a few BLM personal think this area is suitable habitat does not mean it is. Mother Nature apparently does not. This is a very good example of the problems with the guidelines. Sometimes the BLM' s ideas of what a functioning habitat is will just not be possible regardless of what alternative is taken mother nature has her own ideas and will prevail. There needs to be something stated that if no improvement is shown within the first year that gazing plans and AUM's could be changed back to what they were hopefully before a permittee has gone broke. I would also like to point out that on page 3-12 you state only 4% of BLM lands are declining this is a very small percent and shows that the permittees have been doing a good job.

Response: The antelope herd on Ensenada Mesa was stocked in 1989 and has apparently stabilized at approximately 60 - 70 head. A combination of factors may be why antelope are not present in large numbers on Ensenada Mesa. These factors include: climatic fluctuations, the quality of habitat, predation, and dry water sources. The document has been updated with this additional information.

192. Comment: I was told this week by Nancy Koffman of the USFWS that there are about fourteen hundred T&E species in NM and AZ. As these numbers increase in the future as they have in the past we can see the larger part of the so called "eco-system" managed in a manner to not include the rural and local element which include the private property rights that are well established. We have preserved and protected many T&E species along with the countless number of other species, both plants and animals. They all depend on the same environment. Someone's idea is that it requires six hundred acres for a nesting pair of Mexican Spotted Owls. This idea is unfounded and not scientifically proven yet taken for fact. Because of this and other subspecies of spotted Owls the timber industry in the western states has been destroyed with its custom and culture and economical aspects of rural communities.

Response: No response required.

Recreation

193. Comment: P. 3-44. You talk about conflicts between grazing & recreational activities. Which activities are more economically viable for the local communities? Does eco-tourism and vacationers bring in more money than the permittee? You have complaints from recreationist at the Wild Rivers RA, and you don't know what to do, duh????. How about eliminating grazing?

Response: The BLM manages on the basis of multiple use and sustained yield; both recreation and grazing are principal uses of public land. Revenue generation should be analyzed on a site-specific basis through time. There exist many situations where grazing and recreation are supplementary and even complimentary in nature and are not mutually exclusive activities.

In the specific case of the Wild Rivers Recreation Area, historically livestock grazed the uplands and trailed down to the river for water. The BLM built a campground in the livestock use area, where the campers could use the same livestock trails to hike down to the river. This set up a conflict that needed to be resolved. An agreement was signed by BLM and the livestock permittee for removal of livestock from the Wild Rivers campground. In the agreement, BLM agrees to reduce sagebrush from an adjoining pasture. Once the land is treated, (30 to 40 percent has been treated now) and has improved forage conditions, livestock will use the treated area and be removed from the campground area.

194. Comment: In the section on Recreation beginning on 3-43 of the draft, the importance of recreation to the general public is emphasized. However, recent legislative activity in New Mexico has shown that the recreating public do not feel their land use fees should be increased to help cover management and maintenance costs.

Response: The standards proposed in the various alternatives will not increase fees for recreational use of public land. Except for developed sites, hunting, and commercial recreation use on public land is free.

Wilderness

195. Comment: P. 3-44. Because of limited access into wilderness areas, how do you propose to properly monitor and manage these lands that are grazed? Can the BLM provide a breakdown of the rangeland condition in wilderness areas? Please provide some data here.

Response: Although vehicle use in wilderness is normally not allowed, access is allowed by foot or horseback. Where existing improvements require maintenance, a Rangeland Improvement Management (RIM) Plan is developed. The BLM works closely with the allottee in developing the RIM Plan. The RIM Plans permit the use of the "minimum tool" in times of an emergency, to minimize the impacts on the wilderness resources. The "minimum tool" may include motorized vehicles on established routes to repair fenceline, water troughs, and care for livestock, etc. The Plan requests that the allottee notify BLM prior to the activity. A breakdown of the rangeland conditions in wilderness areas has not been compiled as a data base.

Lands/Realty

196. Comment: Land ownership adjustments should be made before any kind of situation against the grazing propositions that are being called for in this book.

Response: Each Field Office identified acreage for disposal and retention in their land use plans (See Lands and Realty section of Chapter 3 for additional detail). In accordance with these plans, each Field Office established a priority for working on land ownership adjustments. Processing land ownership adjustments, in particular exchanges or sales, is expensive and time consuming. All exchange or sale proposals must be conducted in conformance with the Federal Land Policy and Management Act and the National Environmental Policy Act (NEPA) and will require extensive public review (minimum of 120 days per exchange). It is unrealistic to anticipate that land ownership adjustments for New Mexico public land would be completed prior to the implementation of the New Mexico Standards and Guidelines.

197. Comment: P. 3-47 Treatment given this issue is inadequate. The public should be able to legally access public land. The document should address this matter in a substantive way. BLM area offices should identify access/easement issues and establish priorities for the acquisition of access, whether by easement or other means.

Response: The focus of this RMPA/EIS is to document the effects of adopting Statewide standards for public land health and guidelines for livestock grazing management on BLM public land in New Mexico. The topic of access was mentioned briefly in the affected environment chapter as one element of the lands and realty program. The implementation of standards and guidelines for grazing should have minimal, or no effect, on access to public land, therefore the issue was not dealt with in-depth in this document.

If there is a problem with access to a particular block of public land, the issue should be brought to the attention of the BLM Field Office that has jurisdiction over the area of concern.

Economic Conditions

198. Comment: P. 3-50 No reference is made in this section to Payments in Lieu of Taxes to counties. In 1997 and 1998 over $11 million was distributed to New Mexico counties. The document should include a table showing these payments, county by county. Any discussion of economics associated with grazing is deficient/inadequate without consideration of P.I.L.T. payments to counties.

Response: This project has no affect on the Payments in Lieu of Taxes (PILT) to the counties, however, a table showing the latest payments has been included in the Proposed RMPA/Final EIS. PILT payments are determined on a formula basis, with the number of Federal acres constituting the principal determining variable. The logic behind PILT payments is that Federal land within County boundaries are not part of the County's tax base. Therefore, the County should be compensated for lost revenue opportunities. This RMPA/EIS is not considering changes of ownership of land within the County. Therefore, there is no difference between the current situation and the alternatives. The livestock tax base will change with the alternatives, which are incorporated in the State/Local government sector of the Input-Output model used for this analysis.

199. Comment: P. 3-52. This whole economic conditions section is convoluted and difficult to digest. The author of this section seems to be different. Anyway where are the results the data from this analysis referred on this page. Not clear at all.

Response: Chapter 3 is a description of the current conditions; results of the analysis are included in Chapter 4.

Human Dimension

200. Comment: There was one part I really did like. It was talking about the culture of it, and I have to admit that was one part of the book, whoever wrote that, I was really happy with that. It kind of explained how I really feel about the land. For ranchers, it's part of our lives.

Response: No response required.

201. Comment: Particularly insulting was the difference between the rural and the city people. I wish it would be fixed and not be like that because it tends to pit people against each other when there is no reason for it, because we have a lot in common,

meaning a love of the land and wanting to keep it for our children and to have a nice lifestyle.

Response: No response required.

202. Comment: Then there is the junk about culture with the same value-laden words. You describe ranchers as "independent" "self-reliant" etc. I would say they are dependent (on federal and state handouts) and not able to make an honest living in the world and very reliant. That's another perspective that one could argue is easily as valid. No matter, when did it ever say that the BLM's job was to protect a welfare society dependent on federal handouts at the expense of the land and its wildlife? That's not your job. I greatly resent that part of the document.

Response: No response required.

203. Comment: The FEIS should also acknowledge that public rangelands are much more than livestock forage. A multitude of native wildlife species must be able to find their habitat and forage needs on these lands. That is why establishment of appropriate standards and guidelines is so critical at this time. Federal law and policy charge the BLM with significant stewardship responsibilities. These responsibilities must be taken seriously. The bottom line is that the overall objective for permitted livestock grazing on New Mexico's public land should be to improve overall range condition both in the short and long-term. That is what this entire process is all about. As indicated in the document improved rangelands benefit all users of the public land. It is important that BLM makes the appropriate decisions to achieve this outcome.

Response: The BLM agrees with your comment. The BLM as a multiple use agency is charged with stewardship responsibility in accordance with the Federal Land Policy and Management Act (FLPMA). The Healthy Rangeland initiative in 1994, the change in grazing regulations with the addition of the Fundamentals of Rangeland Health (43 CFR 4180) are indicative that the BLM takes its responsibility seriously.

204. Comment: P. 3-59 Does this statement infer that public land should be viewed as private because the counties, rural residents or permittees have the concept, however illusionary, that this is so? Does this somehow infer private right on public land?

Response: No, it does not infer a private right on public land. It only reflects importance of the use of public land to the lifestyle and customs of many rural residents.

205. Comment: P. 3-56. The sizes given, are these mean size of herds?

Response: They are typical herds based on Animal Unit Years (AUY's).

206. Comment: P. 3-57. Delete the last line, 2"d column, repeated on next page.

Response: The correction has been made.

207. Comment: Under the Financial section (3-55), the draft points out the rancher's need for the public land to ensure a return on investment. Why would a permittee intentionally damage land that is so valuable to operations? And, if the recreationists aren't responsible for maintenance on the public land they use, why should ranchers be held responsible? The management plan calls for lessees to pay for improvements they will not own, in order to keep the lease. What incentive is there in this arrangement?

Response: The Management Plan has not been described. As the problems surface, management plans will be developed by local Field Office personnel in careful and considered consultation, cooperation, and coordination with affected permittees/lessees, landowners involved, the Resource Advisory Council, State of New Mexico agencies having lands or responsible for managing resources within the allotment, counties and the interested public.

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

<u>Analysis Approach</u>

208. Comment: By reading the document, I can not tell if I'm going to be one of the ones put out of business or not.

Response: After the plan is in place and the site-specific targets identified, public land will be assessed for compliance with the standards. Where the standards are not being met, BLM will determine what current practices are contributing to the standard not being met. Only then would BLM know who is affected by the guidelines.

209. Comment: Northern New Mexico producers, mainly Hispanic families, are concerned whether their unique custom and culture and economics have been addressed at length or in depth to the unique operations and scenario in Northern New Mexico. So we hope the unique custom and culture in Northern New Mexico has been taken into consideration in this EIS document, or that it will be taken into consideration when the standards and guidelines are implemented. In Northern New Mexico, to the very small permittees who runs 30 or 40 head of cattle on BLM land it is absolutely critical to be able to retain the ability to graze those cattle. The ability to graze that 30 or 40 head has allowed families in northern New Mexico to better themselves by sending their kids to college.

Response: The RMP Amendments would establish the standards for public land. As the Field Offices determine which areas do not meet the standards, they will determine if current uses are keeping the standards from being achieved. Where current livestock grazing practices are determined to be a reason for the standards are not being achieved, the guidelines will be applied. How the guidelines will be implemented will be developed by the local Field Office personnel in careful and considered consultation, cooperation, and coordination with affected permittees/lessees, landowners involved, the Resource Advisory Council, State of New Mexico agencies having lands or responsible for managing resources within the allotment, counties and the interested public. This process will provide the opportunity for Northern New Mexico ranchers to identify unique custom and culture issues that need to be considered in developing livestock grazing programs.

210. Comment: Hispanic families in Northern New Mexico have a concern whether wildlife issues have been addressed and whether the agency is looking at basically carrying capacities for wildlife in the manner where they don't affect the present producers and established livestock carrying capacities. Elk are of particular concern, and I would feel that this document would be quite incomplete if carrying capacities for wildlife hasn't been addressed.

Response: BLM does not have information on wildlife carrying capacities for inclusion in the RMPA/EIS document. Carrying capacities for grazing animals (livestock and wildlife) using public land are now based on monitoring. Management objectives are established for the land with a recognition that wildlife and livestock use the land. Carrying capacities for livestock are set through monitoring taking into account that both livestock and wildlife use the forage.

The BLM agrees that elk have increased and may be reducing the livestock grazing capacity on some private land and on some public land within the State. This issue was addressed under the Wildlife sections in Chapter 3 in the Proposed RMPA/Final EIS.

Wildlife population management is the responsibility of the New Mexico Department of Game and Fish (NMDGF). The NMDGF has developed a strategic plan for elk management which identifies the establishment of Game Management Unit (Unit) population goals as one of it objectives. Through aerial surveys, the NMDGF has estimated elk populations for each Unit. In addition, the NMDGF has developed preliminary population goals for each Unit. These were recently developed (spring 1999) to assist the NMDGF in its efforts to address private land depredation issues. After careful review and consideration, population goals will be finalized for each Unit and incorporated in the NMDGF operational plan document. This plan is scheduled to be completed this fiscal year with a draft expected this fall.

The alternatives provide guidelines for livestock grazing. Consequently, the RMPA/EIS covers livestock grazing to a greater depth than other activities. The RMPA/EIS displays impacts from the actions to many elements of man's environment including wildlife habitat, recreation, soils, water, oil and gas. This analysis is called the "cause-effect" or "from-to" relationship where an action causes an

impact and that impact effect is traced to other environmental components.

211. Comment: Luna County has about 31,000 head of cattle. When looking at the Fallback guidelines it looks like there could be about a 22 percent reduction in cattle grazing (maybe a lot less, but maybe more). To the county that 22 percent would simply mean about $2½ million that wouldn't be generated within the county. The RAC alternative is not much better, at about 19½ percent, or in the neighborhood of a $2 million yearly decrease in revenues that would be available. This is gross revenue. The County alternative drops it down to 13 percent, a large figure even at that. It is estimate that it will take from 12 to 20 years for the land to return to standard. Well if you multiply those cuts over 12 to 30 years then the dollar amount is substantial. Tax revenues are also lost from the cattle that are not there. I would prefer present management first, then the County alternative, the RAC alternative, then the Fallback alternative the least.

Response: The Draft RMPA/EIS did not determine that there would be a 22 percent reduction in livestock grazing in Luna County. Because the actual amount of reductions that would be proposed cannot be determined at this time, various scenarios were evaluated for economic impact to the State economy. It was assumed that some of the ranches not meeting the standard could not achieve the standard without a reduction in animal unit months (AUMs); therefore, each alternative had an option of either no BLM AUM reductions or a 20 percent reduction in BLM AUMs.

212. Comment: Was the Central Mountain Region the only region analyzed for the State of New Mexico? We feel the other regions in New Mexico need to be included for a sound analysis of the regions and the State. The financial assessments completed by Rita Blow of the Southwest Center for Resource Development at Western New Mexico University should be included in the final document. They will show the impacts to the ranching community of all sizes of ranches, extra small, small, medium, large, and extra large. Now, Dr Fowler's assessment and numbers came on the assumption that we were working on the adjudicated numbers given by the Taylor Grazing Act of 1934. This document, of course has in the alternatives a scenario to reduce the carrying capacity of those ranches that do not meet the standards and guidelines by 20 percent, et cetera, et cetera. I'm not sure all that's all final. But without these adjudicated numbers being in the assessment, Dr. Fowler's work and Rita Blow's work, we feel that the financial portion of this document is inadequate and not clearly addressed. It's to the advantage of the BLM and the ranchers to make sure that the financial assessments are made. A true financial assessment, by the way, is made to this document.

Dr. Fowler's assessment, again using those numbers adjudicated by the Taylor Grazing Act, were very and are very pertinent to any decision made by the BLM. If we have the wrong information, then we have a wrong analysis. It appears that if we go forward with the present document and not include some of the new information, we 're going to have a wrong analysis and therefore a wrong document.

Response: The other regions have now been analyzed for the State of New Mexico and are included as a revised Appendix D in this Proposed RMPA/Final EIS. The numbers analyzed were based on the assumption that grazing numbers would be moving toward a specific numeric target. This assessment is based on a long-term goal.

213. Comment: Since the EIS was started there have been some rulings made by the courts, including the Brimmer decision, which may affect the decision and the alternatives of this document, in a major manner. In order to get the true impact alternative, or assessment of these impacts, we're going to have to go back if those decisions are in fact in place and need to be worked with.

Response: To date, the Courts have upheld the regulations in 43 CFR §4180 which provides BLM the direction concerning the development of standards for rangeland health and livestock grazing guidelines. Should courts mandate a change in the regulations, adjustments will be made by BLM to insure compliance with the revised regulations.

214. Comment: You have totally bankrupt the ranching community. It is pretty rigid in this thing where you cannot obtain a loan from the bank to carry over your debt from one year to the next. You cannot get a long enough period of time to do it with. By

looking at the table that you've got in here pertaining to the financial part of this thing, you have got numerous errors in it big time. But it would take one of our employees several hours to go through and pinpoint your errors and show you. Don't feel like that is the banking industry's responsibility to go back and show you your errors. You also did not list your assumptions.

Response: Security of tenure is critical for long-term financial investments for the range livestock industry. The term historic preference was associated with the long run; bankers used the preference numbers as a collateral basis. This impact is beyond the scope of the RMPA/EIS. Representative ranch budgets were used as the baseline of the analysis, a 10-year average budget was used to minimize price and drought variations. Therefore, site-specific individual firm analysis was not evaluated. Since the commentor was not specific on errors, a direct response is not possible. The term historic preference is associated with long range and been replaced with the term actual authorized use.

215. Comment: Throughout the document, many livestock impacts are ignored, therefore dishonest, or one has to conclude the people who put this document together are stupid. I don't think they are stupid, so it seems the BLM is dishonest. How else does one explain the HRM crap in the document that says trampling the earth is good for soils, and no concern is expressed for crytogramic crusts which are critical to preventing soil erosion, adding soil nitrogen, and preventing the establishment of weedy species. There is also the assumption that grazing vegetation is "good" for it. Such pejorative values. This is based upon greater measurable qualities of forage--as if that is the only thing of importance. This additional forage is usually produced at the expense of root development--and when drought occurs--these plants suffer and often die.

Response: The BLM has reviewed the analysis and did not find any needed modification because of this comment.

216. Comment: The economic analysis appears to be incomplete. Does the BLM propose to have 428 allotments meeting the criteria in 21 years?

Response: The objective is to have all lands meeting the standards. The BLM's projections are that currently there are approximately 428 allotments that may contain lands that do not meet the Resource Advisory Council (RAC) Alternative Standards due in part to current livestock grazing practices. Thus, the lands that do not meet the standard would needed to be grazed according to the guidelines. The 21-year time period recognizes that the effects may vary over time. The 21-year period was used in the document to provide a contrast between short-term and long-term impacts.

217. Comment: Why were the allotments meeting the Standard not included? If allotments are meeting the Standard why are livestock numbers going down instead of up? Has preference not been given for full carrying capacity of allotments. Was the Central Mountain Region the only region analyzed for the State of New Mexico? We feel the other regions in New Mexico need to be included for a sound analysis of the regions and the State.

Response: After considering the comment, the economic analysis has been adjusted. The initial analysis (in the Draft RMPA/EIS) of economic impacts of allotments not meeting the standard was incomplete. The allotments that currently met the standard were held constant in the analysis, instead of increasing in grazing capacity. This provided an incomplete picture of the cumulative economic impacts to the State of New Mexico. Those allotments, because they met the standard should not be penalized, but should also move toward a target of 1,968,341 animal unit months (AUMs). Therefore, the analysis was completed by moving all allotments in the State, after 7 years of monitoring, toward a target of 1,968,341 AUMs. The same stair step methodology was used, with one-third of the AUMs being authorized every 7 years.

Also, after the initial analysis (in the Draft RMPA/EIS), an error in the initial methodology was also discovered. When a ranch had a 20 percent reduction in AUMs, those animal units created a negative economic impact to the economy and in year 10, those AUMs were re-authorized for the ranch. This was initially calculated as a negative impact for 10 years and then to year 21 it was a positive impact. However,

this is an incorrect interpretation, because the re-authorization of those AUMs was only bringing the ranching unit back to the baseline animal units, equal to those in the scenario when no AUMs were reduced.

The other regions for the State of New Mexico have now been analyzed and incorporated into Chapter 4 and are included as a revised Appendix D in this Proposed RMPA/Final EIS.

218. Comment: On page 4-6, long-range, for purposes of analysis, is defined as 20 years. We feel that 20 years should be considered as mid-range and that long-range should be 100 years. We realize that the farther in the future one extrapolates, the less accurate are one's predictions. However, attempting to predict no farther than 20 years is not adequate for your analysis, for two reasons.

> **1) The biologic and economic response to differing management practices may take more than 20 years to develop. Our present rangeland ecosystem began developing in the 16th century with the introduction of livestock grazing, and it is still changing. Twenty years is too narrow a window for an adequate view of a 400-year process.**
>
> **2) Weather has dramatic effects on rangeland health. A multi-year drought may require major changes in management practices. Table 3-2 shows droughts from 1899 to 1904 and from 1950 to 1957. Assuming that the weather of the 21st century will be like the weather of the 20th, we can expect two multi-year droughts in the next 100 years, but we cannot predict in which 20-year periods they will occur.**

Range management practices in the years proceeding drought could affect how well the resource withstands drought. Inflexibility in adjusting livestock numbers downward during drought could damage the resource and the economic units that depend on it. Resilience to drought should be examined for the different alternatives. To do so requires a prediction window wide enough to include one or more droughts, or about 100 years.

Response: The commentor makes a legitimate point that drought can make significant impacts to range management programs. However, as the commentor discusses the severity and duration of drys spells can not be predicted in advance. Thus, the long-term projection of the various alternatives resilience to a drought can not be predicted.

The 10-year average ranch budgets used as a baseline minimizes the influence of the price cycle and the drought cycle. Longer time cycles are desirable, however, the longer the prediction the higher the probability of error. The scope was 21 years for this project; it was assumed that beyond that time frame that federal policy would substantially change the economic infrastructure and impacts, requiring additional analysis.

219. Comment: The "Human Dimension" (Financial, Social, Cultural) for Otero County is incomplete and should be allowed to be finished in accordance and agreement with the Comprehensive County Land Use Plan.

Response: The data for all regions have now been completed. See Appendix D which is printed in this document.

220. Comment: Along with our county's custom and culture, we would like also to impress upon the agency and joint leads the diversity of agriculture within Lincoln County and a need for maintenance of these diverse levels instead of general standardization statewide.

Response: No response required.

221. Comment: The environmental impacts in this study are incomplete because what is to happen to the Custom and Culture has not been addressed. I think John Fowler's task force should have more time to finish their work.

Response: Dr. John Fowler did finish his work; the economic analysis is complete and is in the Draft RMPA/EIS. The financial part of the Custom and Culture section was not complete because all regions had not been analyzed. The analysis is now complete and is printed as Appendix D in this Proposed RMPA/Final EIS document.

222. Comment: The economic analysis shows revenue increases when they decrease the number of head for all three alternatives considered.

Response: Livestock numbers and revenue decrease in the short-term, however in the long-term livestock numbers and revenue increase.

223. Comment: The economic analysis of the Central Mountains and Southwest New Mexico addressed the impacts of 20% reduction. The economic analysis analyzed the BLM 20% reduction on the whole ranch. But these ranches often have private and other government lands for grazing. The analysis should have portioned out the BLM permit and only analyzed the impacts on that portion, rather than the whole ranch. This mistake leads to the wrong conclusion. It shows that the southwest ranches to be too low in impact estimates and shows the Central Mountains to be too high in their estimated impacts. The reverse is actually true because the Central Mountain region has relatively small per cent of BLM permits, while the Southwest has rather high portion of BLM permits as a part of their total ranch.

Response: Percent changes were not assumed to be uniform to all ranches around the State. Independent impacts were determined by ranch size and ranching region based on representative ranch layout, level of improvement, and season of use and forage production. Reductions on BLM ownership were not allowed to be substituted over to State and private ownerships within the ranch unit. The end result of the reduction of BLM animal unit months (AUMs) will impact the total ranch unit by 20 percent because animals not carried on the BLM can't be shifted to private land or State trust land because they are already at full capacity.

BLM forage in the Central Mountains is typically the portion of the ranch that the livestock are "turned out" on in the spring. This critical spring forage is vital to the ranch unit. Without the spring forage, livestock would have to be fed during this time or the whole ranch livestock numbers reduced. As stated, substitution of ownership was not allowed because alternative ownerships were assumed to be fully stocked.

224. Comment: The production functions and cost functions from the "Ranch Cost & Returns" reports have been changed, producing more animals with lower revenues and increased costs. The ratios were changed, rather than using Dr. Torell' averages. This results in depicting small and extra small ranches as less profitable than they really are - as an economic unit. This is inaccurate according to the "Cost & Return" analysis.

Response: The number of animal unit months (AUMs) by size category by region has changed over time in the published budgets, therefore, the 10-year average budget does not necessarily reflect the ratios for any single year.

225. Comment: Grazing fee costs - too many AUMs on several tables, these tables show more payments in grazing fees than they actually have, especially in small and extra small ranches.

Response: The grazing fee in the 10-year average budget incorporated the higher Federal grazing fees in the late 1980's, therefore, yielding a higher fee per AUM than the current fee of $1.35 per animal unit month (AUM) being charged today.

226. Comment: **In the different regions analyzed, where they did not have cost estimates, it looks like they used the next larger ranch size class as a substitute. This results in loosing the economies of scale: Instead of using ratios to preserve economies of scale, they used just multiples. As an illustration, feed costs that are large for larger ranches, were used on smaller ranches, giving an inflated cost estimate for feed costs.**

Response: The assumption used for developing a budget from other ranch budgets in that region for a missing budget actually credited the "smaller" sized ranches with the economies of scale of the larger ranch. The end result was a deflated cost estimate of feed costs for the smaller ranch.

227. Comment: The following comment is based on my review of the draft EIS with a comparative evaluation with the "Cost and Returns Ranch Budgets" Allen Torell, Ph.D., from New Mexico's land grant university. The problems with the methodology is a concern with how percent changes were calculated:

The methodology states that the percent changes were calculated as follows: "A ranch with an 80% calf crop and the percent change is - 20%, the ranch will now

have a 60% calf crop." This is incorrect, either in mathematical calculation, or statement, or both. If the percent change is actually - 20%, then the resulting calf crop should be 69%, not 60% (i.e. - 20% of 80%=16%; 80% - 16%=64%). If the result is to be 60% calf crop, then the percent change is -25%, not -20% (i.e. 60% = 80%(-X% of 80) = X% of 80% = 80%-60%; X% of 80%=20%; X = 20%/80% = 25%). A correct way of stating the change would be: "An additional -20% reduction in calf crop would result in a 60% calf crop, " but -25% would still have to be used in the actual calculation.

Response: The figures used were based on figures the livestock industry recommended. The calf crop would drop from the current 80 percent calf crop to a 60 percent calf crop. The ranch would end up with a 60 percent calf crop which amounts to a 25 percent reduction.

228. Comment: The following comment is based on my review of the draft EIS with a comparative evaluation with the "Cost and Returns Ranch Budgets" Allen Torell, Ph.D., from New Mexico's land grant university. The problems with the methodology is a concern with how percent changes were applied:

It appears that percent changes were assumed to be uniform to all ranches around the state, regardless of the percentage of dependency on the BLM permit. For example, the small ranch in the Central Mountain region is less than 12% dependent on the BLM permit (i.e. 188 BLM's AUMs of 1596 AUMs=11.78%). Yet management changes under the RAC alternative would result in a decrease of 25.6% (AUM 24.91 %-1 6.41 %=-25.6%. In the Southwest region, the small ranch is 62.04% dependent on the BLM permit (i.e. 749 BLM AUMs of 1204 AUMs=62.04%). Yet management changes under the RAC alternative result in a smaller decrease in gross revenues per AUM of 16.5%; i.e. (20.25 - 169) /20.25 = 16.5%. It is not logical that a ranch with a small dependency on BLM grazing dependency on BLM grazing. The impacts should be weighted according to percentage of dependency. It does not appear that this has been done.

Response: Percent changes were not assumed to be uniform to all ranches around the State. Independent impacts were determined by ranch size and ranching region based on representative ranch layout, level of improvement, and season of use and forage production. Reductions on BLM ownership were not allowed to be substituted over to State and private ownerships within the ranch unit. The end result of the reduction of BLM animal unit months (AUMs) will impact the total ranch unit by 20 percent because animals not carried on the BLM can't be shifted to private land or State trust land because they are already at full capacity.

229. Comment: The following comment is based on my review of the draft EIS with a comparative evaluation with the "Cost and Returns Ranch Budgets" Allen Torell, Ph.D., from New Mexico's land grant university. The problems with the methodology is a concern with no adjustment to labor cost.

The methodology does not include an adjustment for labor costs under any of the management changes. It is somehow accounted for under revenue changes, but no explanation is given. Additionally, where the rancher pays the full cost for capital improvements, the only adjustment is under "interest paid." There should also be a labor cost, or at least a charge in depreciation costs, to account for labor ad materials spread out over more than one year.

Response: Associated variable costs of operating and maintaining the ranch (including changes in labor requirements). On page 4-4 of the Draft RMPA/EIS, Methodology, add "including labor" in line 10. The change has been made to the Proposed RMPA/Final EIS.

230. Comment: The following comment is based on my review of the draft EIS with a comparative evaluation with the "Cost and Returns Ranch Budgets" Allen Torell, Ph.D., from New Mexico's land grant university. The problems with the 10-year and average budgets is a concern with changes in the revenue functions:

The 10-year - average budgets are supposed to be actual averages of 10 years of published budgets produced by Dr. Torell. This is not the case. The 10-year - average budgets have changed the number of AUYs for the typical ranch on all of the Southwest budgets, and one of the Central Mountain budgets, from Dr. Torell's work. Example: Dr. Torell's work

states that the small ranch in SW New Mexico has 104 AUYs (see tables for any year of publication). However, the 10-year - average budget uses only 100 AUYs. The medium and large ranches in the same area are changed from 241 to 231, and 443 to 425, respectively. This results in a lower profitability (gross revenue potential) for these ranches.

Additionally, the proportion of yearlings, calves, cull cows, and cull bulls sold is proportionately reduced. For example: The extra-small ranch in the Central Mountain region has 53 AUYs, in Torell's work this ranch sells the following:

8	**Yearling Heifers**
0	**Yearling Steers**
76	**Heifer Calves**
18	**Steer Calves**
0	**Cull Bull**
4	**Cull Cows**

Under the 10-year - average budget, the same ranch sells the following:

6	**Yearling Heifers**
0	**Yearling Steers**
7	**Heifer Calves**
18	**Steer Calves**
0	**Cull Bulls**
4	**Cull Cows**

Not only has the total number of animals sold been reduced, but the number has been shifted from higher revenue producing animals to lower revenue producing animals. This results in a lower income per AUM than under Dr. Torell's work. Additionally, some ranches have feed payments that were not part of Torell's analysis (see SW region small ranches).

Response: Percent changes were not assumed to be uniform to all ranches around the State. Independent impacts were determined by ranch size and ranching region based on representative ranch layout, level of improvement, and season of use and forage production. Reductions on BLM ownership were not allowed to be substituted over to State and private ownerships within the ranch unit. The end result of the reduction of BLM animal unit months (AUMs) will impact the total ranch unit by 20 percent because animals not carried on the BLM cannot be shifted to private land or State trust land because they are already at full capacity.

BLM forage in the Central Mountains is typically the portion of the ranch that the livestock are "turned out" on in the spring. This critical spring forage is vital to the ranch unit. Without the spring forage, livestock would have to be fed during this time or the whole ranch livestock numbers reduced. As stated, substitution of ownership was not allowed because alternative ownerships were assumed full stocked.

The number of AUMs by size category by region has changed over time in the published budgets, therefore, the 10-year average budget does not necessarily reflect the ratios for any single year.

The grazing fee in the 10-year average budget incorporated the higher Federal grazing fees in the late 1980's, therefore, yielding a higher fee per AUM than the current fee of $1.35 per AUM being charged today.

The assumption used for developing a budget from other ranch budgets in that region for a missing budget actually credited the "smaller" sized ranches with the economies of scale of the larger ranch. The end result was a deflated cost estimate of feed costs for the smaller ranch.

231. Comment: The following comment is based on my review of the draft EIS with a comparative evaluation with the "Cost and Returns Ranch Budgets" Allen Torell, Ph.D., from New Mexico's land grant university. The problems with the 10-year and average budgets is a concern with changes in the cost function:

Again, the 10-year - average budgets do not reflect Dr. Torell's original work. For example: The extra - small ranch in the Central Mountain Region, under Torell's work, has 53 AUYs, or 636 AUM (530 of these AUMs are a forest service permit, the remaining 96 are on private land). However, the 10-year average budget has 540 AUMs on the forest service permit, and 170 on the BLM permit for a total of 710 AUMs, which is a cost of 74 AUMs more than the ranch has. Additionally, the ratio's for feed cost/AUM are different than cost/AUM than Torell's work and less opportunity for profitability.

Response: The number of animal unit months (AUMs) by size category by region has changed over time in the published budgets, therefore, the 10-year average budget does not necessarily reflect the ratios for any single year.

The grazing fee in the 10-year average budget incorporated the higher Federal grazing fees in the late 1980's, therefore, yielding a higher fee per AUM than the current fee of $1.35 per AUM being charged today.

The assumption used for developing a budget from other ranch budgets in that region for a missing budget actually credited the "smaller" sized ranches with the economies of scale of the larger ranch. The end result was a deflated cost estimate of feed costs for the smaller ranch.

232. Comment: The following comment is based on my review of the draft EIS with a comparative evaluation with the "Cost and Returns Ranch Budgets" Allen Torell, Ph.D., from New Mexico's land grant university. The problems with the costs after management charges with 20%reduction.

The changes in costs after management changes are done inconsistently when the 20% reduction is factored in. For example: The extra - small ranch in the Southwest region shows an increase in feed costs/AUM under both the RAC and Fallback alternatives when a 20% decrease in AUMs is factored in. How can a reduction in AUMs result in increased feed costs? Additionally, the same ranch shows a decrease below original cost in feed costs if a 20% reduction under the County Alternative is used. The small ranch, however, is different in that all three alternatives show a decrease in feed costs, but at different rates (i.e. the RAC and County Alternatives decrease to below cost). The medium ranch is similar to the small ranch, except that under the Fallback alternative feed costs/AUM go up with a decrease in AUMs.

Negative slope on total revenue function 20% reduction applied to whole ranch, not just BLM permit portion.

Extra - small ranch is SW Region has too large feed program payment.

Response: A reduction in animal unit months (AUMs) can lead to an increased feed costs by one of two mechanisms: the remaining livestock need to be fed on an allotment not meeting the standard, and there is a deferment period while necessary improvements are being put into practice. Different regions have different feed costs.

Percent changes were not assumed to be uniform to all ranches around the State. Independent impacts were determined by ranch size and ranching region based on representative ranch layout, level of improvement, and season of use and forage production. Reductions on BLM ownership were not allowed to be substituted over to State and private ownerships within the ranch unit. The end result of the reduction of BLM AUMs will impact the total ranch unit by 20 percent because animals not carried on the BLM cannot be shifted to private land or State trust land because they are already at full capacity.

BLM forage in the Central Mountains is typically the portion of the ranch that the livestock are "turned out" on in the spring. This critical spring forage is vital to the ranch unit. Without the spring forage, Livestock would have to be fed during this time or the whole ranch livestock numbers reduced. As stated, substitution of ownership was not allowed because alternative ownerships were assumed full stocked.

The number of AUMs by size category by region has changed over time in the published budgets, therefore, the 10-year average budget does not necessarily reflect the ratios for any single year.

The grazing fee in the 10-year average budget incorporated the higher federal grazing fees in the late 1980's, therefore, yielding a higher fee per AUM than the current fee of $1.35 per AUM being charged today.

The assumption used for developing a budget from other ranch budgets in that region for a missing budget actually credited the "smaller" sized ranches with the economies of scale of the larger ranch. The

end result was a deflated cost estimate of feed costs for the smaller ranch.

233. Comment: The human dimension section has not considered the economic and social impact on the individual ranching entities as well as the county's tax base.

Response: The impact to individual ranching entities is not possible at this time because the affected ranches can only be identified after evaluating where land meets or does not meet the standards. It is also not possible to accurately predict the impacts to the County's tax base until the lands meeting the standards are evaluated.

234. Comment: My understanding of your draft is that any of the proposals would put the majority of the ranching units-completely out of business. Is this the intent of this plan? The custom and culture on these lands has been livestock grazing for well over 100 years. This was a right established long before New Mexico became a State. That right was established before the federal government set aside those lands as public land. It seems to me that if livestock grazing was going to destroy the land and wildlife species it would have done so many years ago.

Response: The BLM agrees with the commentor that livestock grazing has occurred for many years on the majority of the BLM public land. The majority of the land is in a sustainable condition. The Draft RMPA/EIS estimates that only 14 - 24 percent of the public land ranches would have land that would not meet the standards. Thus, an estimated 76 - 86 percent of the ranches would not be affected by the standards for public land health or guidelines for livestock grazing. The remaining ranches may be affected as analyzed in Chapter 4. The intent of establishing standards for public land health is not to "drive ranchers out of business" but rather, to insure (current and future) use of the public land does not compromise the productivity of the land and associated resources.

235. Comment: Since the Secretary of Interior is mandating the new Standard be implemented, we choose the County Alternative. In using the County alternative we believe fewer allotments will be adversely affected. This belief is based on the following:

Everyone is aware it will cost a substantial amount of money to bring present allotments up to the recommended standards. Those permittees already struggling to make needed improvements will be hardest hit. In most cases this tends to be the small to medium sized operations.

The assumption that the BLM will pay 100% of the improvements is flawed because the total improvement costs to bring the allotments into compliance will be much higher that the limited budget now available to the BLM.

Permittees that are required to pay for part of the needed improvements, while at the same time reducing allotment numbers will suffer enormously and the estimated number of ranchers losing their ability to sustain themselves in their ranching businesses, and those forced to convert their property to real estate will be much higher than the 22% estimated in the EIS.

In addition, the economic analysis is flawed in that it does not consider or direct resources to the unaffected allotments, skewing the results that indicate the RAC Alternative will be the best Alternative in the long term.

The economic analysis should have considered resources directed to the unaffected allotments after ten years, by which time the affected allotments, should have completed their improvements. If this economic analysis had been used in the EIS, the results would probably have shown the County Alternative to be the best in the short term, as well as the long term. If a permittee can not survive the short term, the long term is irrelevant.

Response: After considering the comment, the economic analysis has been adjusted. The initial analysis (in the Draft RMPA/EIS) of economic impacts of allotments not meeting the standard was incomplete. The allotments that currently met the standard were held constant in the analysis, instead of increasing in grazing capacity. This provided an incomplete picture of the cumulative economic impacts to the State of New Mexico. Those allotments, because they met the standard should not be penalized, but should also move towards a specific numeric target. Therefore, the analysis was completed

by moving all allotments in the State, after 7 years of monitoring, towards a specific numeric target. The same stair step methodology was used, with one-third of the AUMs being authorized every 7 years.

Also, after the initial analysis an error in the initial methodology was also discovered. When a ranch had a 20 percent reduction in animal unit months (AUMs), those animal units created a negative economic impact to the economy and in year 10 those AUMs were re-authorized for the ranch. This was initially calculated as a negative impact for 10 years and then to year 21 it was a positive impact. However, this is an incorrect interpretation, because the re-authorization of those AUMs was only bringing the ranching unit back to the baseline animal units, equal to those in the scenario when no AUMs were reduced.

236. Comment: In the analysis, you failed to bring in the human dimension that should have played a big part in the overall picture. Right now, statistically, 80% of the land in New Mexico is managed by 20% of the ranchers. In our area, the Bootheel of New Mexico, these statistics appear to hold true. Twenty percent (20%) of the ranches include one for-profit corporation (Phelps Dodge/Pacific Western), and the other one a not-for-profit corporation (the Animas Foundation). Both corporations have significant financial resources available to make needed improvements and bring their allotments into compliance with mandated standards. The other 20% of the land in our area is managed by 80% of the ranchers. Still holding true to statistics, those 80% are small to medium sized family owned and operated ranches. Typically, these family managed operations have rather limited resources available to bring their allotments into compliance with the new standards and guidelines. If they did have the money, they would already be making the much needed rangeland improvements. As it is, most permittees are doing all that they can economically afford at the present time. We would like to state that it is these 80% (family owned and operated ranches) that will be most likely to be adversely affected by the new standards and guidelines. Eventually, this will lead to a greater percentage of the land being managed by large corporations as private land are converted to real estate. An analysis of this type should have been discussed in the EIS to see if this comparison holds true, and to see if it is likely to occur on a statewide basis.

Response: The EIS is of a pragmatic nature and not site-specific. The assumption used in this analysis (page 4-4 of the Draft RMPA/EIS) stated that "these ranches including the permit/lease was assumed as permanent loses and no longer maintained in production". If corporations obtained the vacant permits, then adverse impacts due to the loss of animal unit months (AUMs) would be mitigated to the State and counties. The livestock tax base would only be reduced by the loss of the deeded portion. The County's tax base would potentially increase as the deeded portion of the ranches are converted to alternative higher value uses.

237. Comment: I urge the BLM to compare the analysis with the California guidelines. Though not perfect, this CA guidelines look at a spectrum of analysis of the impacts and benefits from grazing.

Response: No response required.

238. Comment: The analysis was skewed and does not look at the spectrum of information that is available.

Response: The comment is not specific, thus it is not possible to respond.

239. Comment: We recommend the BLM select the County alternative. Our reasoning is as follows:

> **The BLM estimates the County Alternative will effect fewer allotments than either the RAC or the Fallback Alternative. This is significant because BLM funding may not be available to assist in improving range conditions on affected allotments. The rancher may have to pay for the needed improvements while at the same time being forced to reduce allotment numbers. To improve range conditions in our county large scale brush control will be required. If an analysis had been completed requiring ranchers to pay for the brush control cutting cattle numbers, the estimated of ranchers converting to real estate would probably be much higher than this EIS estimates (22%).**

Response: The 22 percent converting to real estate was in response to higher grazing fees and additional restrictive regulations; it is the only published reference at this time. Deviation from this level would be speculation.

240. Comment: The analysis is flawed. The reason the long term analysis for the RAC Alternative is better than the County Alternative is because more allotments are effected in the RAC Alternative. The analysis then brings the affected allotments up to preference number by targeting resources of these allotments, while the unaffected allotments retain their current numbers. It should be the goal of all of us to bring every allotment up to preference. For instance, after ten years most of the resources directed at the affected allotments would be complete. The next ten years the unaffected allotments should receive the resources. An analysis of this scenario would likely show the County Alternative would be the best Alternative both in the short term and the long term.

Response: After considering the comment, the economic analysis has been adjusted. The initial analysis (in the Draft RMPA/EIS) of economic impacts of allotments not meeting the standard was incomplete. The allotments that currently met the standard were held constant in the analysis, instead of increasing in grazing capacity. This provided an incomplete picture of the cumulative economic impacts to the State of New Mexico. Those allotments, because they met the standard should not be penalized, but should also move towards a specific numeric target. Therefore, the analysis was completed by moving all allotments in the State, after 7 years of monitoring, toward a specific numeric target. The same stair step methodology was used, with one-third of the animal unit months (AUMs) being authorized every 7 years.

Also, after the initial analysis an error in the initial methodology was also discovered. When a ranch had a 20 percent reduction in AUMs, those animal units created a negative economic impact to the economy and in year 10 those AUMs were re-authorized for the ranch. This was initially calculated as a negative impact for 10 years and then to year 21 it was a positive impact. However, this is an incorrect interpretation, because the re-authorization of those AUMs was only bringing the ranching unit back to the baseline animal units, equal to those in the scenario when no AUMs were reduced.

241. Comment: The EIS includes inaccurate economic impacts that used Adjudicated Preference 20 years for long range projections without adequately displaying negative impacts in the short run (over the next 7 years).

Response: The tables which show the economic impacts have been updated to include the 7 and 10 year numbers, for each of the alternatives.

242. Comment: The EIS fails to include state and county human dimension impacts.

Response: The human dimension impacts are included on a state-wide basis for the various alternatives in Chapter 4, but data are not available for a County-by-County assessment.

243. Comment: **The BLM DEIS fails to address the (1) Affected Environment (2) Environmental Consequences (3) RAC Alternative (4) Fallback Alternative and (5) County Alternative of a Southwest Region small cow/calf ranch. The rangeland that I have differs a great deal from rangeland in other areas of the state and even areas of this county. The Financial Impact Analysis in the DEIS is an important measurement, specific to financial effects on the individual ranch operations. The analysis shows that some ranchers would no longer be able to stay in business under the RAC and Fallback Alternatives.**

Response: The other regions have now been analyzed for the State of New Mexico and are included as a revised Appendix D in this Proposed RMPA/Final EIS. The numbers analyzed were based on the assumption that grazing numbers would be moving toward a specific numeric target. This assessment is based on a long-term goal.

244. Comment: BLM has different interpretation of the law than the state and counties concerning NEPA, Executive Orders, Rules and Regulations. These differences were never mitigated or resolved.

Response: Yes, there were differences. The CEQ regulations directs that the responsibility for quality of the EIS resides with the Federal agency, therefore the document was published with legal theories and interpretations of the Department of the Interior.

Where the State and County analysis was based on legal theories that were inconsistent with Department of the Interior interpretations of Federal laws, regulations and Executive Orders, the Department of the Interior interpretations were used. In the interest of full disclosure and cooperation, the BLM offered to print any differing views that the State Team and the Cooperating Counties had in an Appendix to the Draft RMPA/EIS (Appendix F), however none were provided to BLM.

245. Comment: The BLM unilaterally broke a cooperative agreement to include all the data worked up during the EIS development meeting process, refused to include the human dimension part of NEPA, and wrote the DEIS over protests of the state team and the cooperating counties.

Response: The Draft RMPA/EIS includes Human Dimension sections comprised of financial, social, and cultural impact analyses. The existing situation for Human Dimension begins on page 3-52 of the Draft RMPA/EIS. The analysis of impacts to the Human Dimension begins on 4-6 of the Draft RMPA/EIS (methodology), 4-17 of the Draft RMPA/EIS (existing situation), 4-30 of the Draft RMPA/EIS (Resource Advisory Council (RAC) Alternative), 4-42 of the Draft RMPA/EIS (County Alternative), and 4-53 of the Draft RMPA/EIS (Fallback Alternative).

The foundation for the Human Dimension analyses was provided by the State Team, however adjustments were necessary where their analysis was based on legal theories that were inconsistent with Federal laws, regulations and Executive Orders. In the interest of full disclosure and cooperation, the BLM offered to print any differing views that the State Team and the Cooperating Counties had in an Appendix to the Draft RMPA/EIS (Appendix F), however none were provided to BLM prior to printing the Draft RMPA/EIS.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to human dimension issues with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive Orders and County ordinances. The Proposed RMPA/Final EIS reflects the widest consensus of the requirements and relationships.

246 Comment: **The Bureau needs to consider all of the custom and culture including residents who own no livestock and enjoy public land for their esthetic qualities.**

Response: The Custom and Culture Section for each alternative has been modified to address the commentor's concern regarding enjoyment of public land for qualities other than livestock.

247. Comment: Based on our interpretation of the National Environmental Policy Act (NEPA) regulations, the most problematic procedural concern with the DEIS is that it does not adequately present the anticipated impacts and the alternatives in comparative form, which would allow the reader to distinguish between alternatives. Chapter 4 discusses the anticipated effects of implementation of each of the four alternatives on natural resource criteria. The Upland Vegetation, Water and Special Status Species sections for each alternative consist of repetitious verbatim text. These repetitious statements do not clearly differentiate the potential impacts of each alternative on these resources to provide a clear basis of choice. Similarly, the Big Game, Upland Game/Nongame and Waterfowl/Fisheries subsections for each Major Land Resource Area (MLRA) often contain verbatim language that also does not distinguish qualitative differences between alternative implementation on these resources. Clearly defined comparative analysis of each alternative would allow for well defined analysis of alternative implementation on wildlife resources in the various MLRA's and special status species. We recommend that these sections of the document be rewritten to more clearly define the differences between anticipated potential effects of each alternative. Providing comparative information in a table format for all resource criteria evaluated would be especially helpful in distinguishing differences between the alternatives.

Response: The regulations for the development of State Director standards and guidelines came with criteria that must be met. Thus, there is only minimal

opportunity to develop alternatives which result in a great difference in impacts to the physical and biological environments.

248. Comment: The DEIS does not explain how intensified grazing regimes will be used to achieve and maintain standards. The DEIS contains repetitious statements in the Grazing Administration sections for each alternative that do not clearly define differences between anticipated future management practices for increased livestock numbers and previous practices, and between alternative implementation. Since grazing has been a contributing factor to not meeting the existing standards on some allotments, a discussion should be provided describing how future management practices that increase livestock numbers will: 1) differ from previous management practices that were insufficient to maintain upland and riparian health; 2) achieve the adopted standards and the goals of increasing biological diversity, vegetative productivity and proper functioning conditions of upland and riparian areas; 3) avoid contributing to or returning to the conditions that require the implementation of new standards and guidelines; 4) maintain the new standards for rangeland and riparian health once they have been achieved; and 5) differ between alternatives.

Response: This document is a Statewide RMP Amendment that analyzes the effects of adopting a set of standards for rangeland health and guidelines for livestock grazing (S&Gs). The alternative selected will amend each RMP in the State and supplement the decisions of that plan. The regulations for the development of State Director standards and guidelines came with criteria that must be met. Thus, there is only minimal opportunity to develop alternatives which result in a great difference in impacts to the physical and biological environments.

Once the S&Gs are approved and site-specific targets are determined, the next step is to determine through inventory, monitoring, or qualitative assessment or in combination, areas that are not meeting the standard. As it is determined which areas do not meet the standards, a determination will be made if current uses are keeping the standards from being achieved. Where current livestock grazing practices are determined to be a reason the standards are not being achieved, the guidelines will be applied. How the guidelines will be implemented will be developed by the local Field Office personnel in careful and considered consultation, cooperation, and coordination with affected permittees/lessees, landowners involved, the Resource Advisory Council, State of New Mexico agencies having lands or responsible for managing resources within the allotment, counties and the interested public. Standard rangeland monitoring techniques will be used to insure progress is being made.

249. Comment: The DEIS does not recognize the importance of vegetative communities as forage for wildlife. No discussion of formulas for determining AUM allocations for wildlife was included in the DEIS. Please provide a discussion in the wildlife sections of each alternative explaining how AUM's for wildlife will be determined, and how these formulas would differ for each alternative.

Response: It is true the Draft RMPA/EIS did not identify formulas for allocation of wildlife forage. Rather, the document discusses setting the standard for land condition. Management and all uses and users of the public land will be expected to be in concert with the standard including wildlife that are the responsibility of the State of New Mexico. Since site-specific standards have not been established and the lands have not been inventoried to determine consistency with the standards, it would not be prudent to establish how issues will be resolved to insure compliance with the standards.

The alternatives provide guidelines for livestock grazing. Consequently, the RMPA/EIS covers livestock grazing to a greater depth than other activities. The RMPA/EIS displays impacts from the actions to many elements of man's environment including wildlife habitat, recreation, soils, water, oil and gas. This analysis is called the "cause-effect" or "from-to" relationship where an action causes an impact and that impact effect is traced to other environmental components
.

250. Comment: The entire analysis is flawed because there is no consistency in analysis of each area.

Response: The BLM interprets the comment to be critical of the Draft RMPA/EIS because the Financial Analysis did not include an analysis of regions

beyond the Central Mountain Region. The analyses of the other regions are included in the Proposed RMPA/Final EIS.

251. Comment: The BLM has dropped preference. The Economic analysis was based on the assumption that preference was the desired goal so the economic analysis is invalid.

Response: It is expected that ecological conditions will improve over time and that grazing capacity will improve over time. Moving toward a specific numeric target was an assumption used for all alternatives. Year 21 was the final year of analysis; it was assumed that the allotment should have achieved an ecological condition surpassing the standard and the allotment would be operated at full capacity. The important criterion for the analysis is not whether AUMs are attached to the base property, but rather the number of AUMs or level of stocking on the allotment.

252. Comment: The BLM information problems include database inaccuracies, methodologies, delays and a general lack of clarity, understanding and readability of the DEIS. In addition, meetings between the State ID Team and BLM illustrate chronic problems with BLM delays as well as inconsistencies and inaccuracies with the BLM's information, analysis and persistent misinterpretations. This is reinforced by the Customs and Cultures of the County in an appendix instead of the main body of the DEIS.

Response: The CEQ regulations direct that the responsibility for quality of the EIS resides with the Federal agency, therefore the document published has to be consistent with legal theories and interpretations of the Department of the Interior. The BLM agreed to place the County Custom and Culture write-ups in the Appendix so BLM would not have to edit them and insure accuracy of the information. The County Custom and Culture write-ups can be found in Appendix E.

253. Comment: The BLM failed to identify and fulfill their statutory and regulatory requirements by not including adequate and detailed socioeconomic, cultural or distributional effects analyses. More particularly, the BLM did not analyze the effects on equity (e.g., distributional effects) or federal rights regulations, including requirements to conduct Takings Implication Assessment Presidential Executive Order 12630) or impacts on civil rights (18 U.S.C. 241 & 245(a)(1), 1964 Civil Rights Act Title VII). The BLM persisted in ignoring their responsibilities under Presidential Order 12898, Environmental Justice and Environmental Justice NEPA Guide (designed specifically for addressing the effects on protected classes of citizens). In addition, the BLM disregarded requirements to assess regulatory impacts (Presidential Order 12291); the Regulatory Flexibility Analysis (5 U.S.C. 603 & 604); and, the requirements under the Presidential Executive Order 13045 Protection of Children from Environmental Health Risks and Safety Risks.

Furthermore, the BLM was presented with documentation from their own manuals and guidelines for conducting socioeconomic analyses, for considering Human Dimension, and distributional effects, civil rights and Environmental Justice, mitigation guidelines BLM Guide to Social Assessment, Reference Guide to Socioeconomic Mitigation and Human Dimension Internal Policy. Yet BLM disregarded these cites by leaving out important components in the Effects/Impact Analyses.

Response: In the Draft RMPA/EIS where the State Team analysis was based on legal theories that were inconsistent with Department of the Interior interpretations of Federal laws, regulations and Executive Orders, the Department of the Interior interpretations were used. In the interest of full disclosure and cooperation, the BLM offered to print any differing views that the State Team and the Cooperating Counties had in an Appendix to the Draft RMPA/EIS (Appendix F), however none were provided to BLM prior to printing the Draft RMPA/EIS.

The RMPA/EIS contains an analysis on Executive Order 12291, Civil Rights and supporting laws and issues concerning Civil Rights, Executive Order 12630, Executive Order 12898 in the section called Common to all Alternatives. In preparing the Proposed RMPA/Final EIS, BLM reviewed 18 USC 241 and 245, 5 USC 603 and 604, plus Executive Order 13045 and found no conflicts with the proposed program and the direction found in these documents.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to human dimension issues with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive Orders and County ordinances. The Proposed RMPA/Final EIS reflects the widest consensus of the requirements and relationships.

254. Comment: BLM refused to include the State Team's social, cultural and equity (distributional effects) analyses, otherwise referred to as the Human Dimension. Analysis per State/County/BLM agreement. While the BLM seemingly recognized the differences in analyses and documentation, the BLM disregarded CEQ requirements for both resolving differences and for dealing with differences by removing the State Team's Human Dimension impact analyses and documentation. Again, CEQ states:

> ***If the lead agency leaves out a significant issue or ignores the advise and expertise of the cooperating agency, the EIS may be found later to be inadequate. Similarly, where the cooperating agencies have their own decisions to make and they intend to adopt the environmental impact statement and bare their decisions on it, one document should include all of the information necessary for the decisions by the cooperating agencies. Otherwise they may be forced to duplicate the EIS process by issuing a new, more complete EIS or Supplemental EIS, even though the original EIS could have sufficed if it had been properly done at the outset. Thus both lead and cooperating agencies have a stake in producing a document of good quality. ... (CEQ FMAQ #14b).***

Cooperating Counties plan to base their (County) decision on the one document, that is, the BLM DEIS. Given the problems with the DEIS, Cooperating Counties have been forced to duplicate the DEIS and redo the entire process, analysis and documentation.

CEQ recognizes differences and provides instructions for dealing with this. More importantly it is clear that CEQ still requires that "complete" state and county analyses be included in the document:

Because of the differences in perspectives as well as conflicts among federal, state and local goals.., the Council has advised participating agencies to adopt a flexible, cooperative approach. The joint EIS should reflect all of their interests and missions, clearly identified as such. The final document would then indicate how state and local interests have been accommodated or would identify conflicts in goals... the EIS must contain a complete discussion of the scope and purpose of the proposal, alternatives, and impacts so that the discussion is adequate to meet the needs of local, state and federal decisionmakers. FMAQ#22)

It was clear in the agreement with the BLM that the State Team in consultation with Cooperating Counties, would analyze and document the economic, social, cultural and equity analyses for both chapters three and four of the DEIS. It is also clear that BLM action denied the State and the Counties the right to full disclosure of the impacts deemed by the State and Counties in one document. The BLM chose to disregard their own legal requirements, and in this process disregard State and County laws to protect the health, safety and welfare of their citizens.

Response: The CEQ regulations direct that the responsibility for quality of the EIS resides with the Federal agency, therefore the document published has to be consistent with legal theories and interpretations of the Department of the Interior.

Where the State Team analysis was based on legal theories that were inconsistent with Department of the Interior interpretations of Federal laws, regulations and Executive Orders, the Department of the Interior interpretations were used. In the interest of full disclosure and cooperation, the BLM offered to print any differing views that the State team and the Cooperating Counties had in an Appendix to the Draft RMPA/EIS (Appendix F), however none were provided to BLM prior to printing the Draft RMPA/EIS.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to human dimension issues with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive Orders and County ordinances, the Proposed RMPA/Final EIS reflects the widest consensus of the requirements and relationships.

255. Comment: P. 4-1. Under Analysis Approach, that is a pretty damning statement to admit to: "The BLM has a variety of resource data, but has not inventoried the public land to determine if the proposed standards are being met or not". If Field Offices gave estimates/data, etc., then why not provide maps, tables. How were these estimates made. Show an example of how 1 FO went through this estimation process.

Response: It would be expensive and time consuming to inventory the public land prior to determining what the standards will be. Therefore, BLM asked the Field Offices to provide estimates. Recognizing that this is a Statewide EIS, the BLM believes it would not be prudent to provide maps of projected areas meeting or not meeting the standards.

256. Comment: P. 4-2: Where did the 20% reduction in BLM AUMs come from?

Response: The 20 percent reduction in animal unit months (AUMs) was assumed as one reasonable scenario for economic analysis. The analysis also looked at no reduction in AUMs. The actual amount of reduction is believed to be somewhere between the two.

257. Comment: P. 4-3: There is no message in fig. 4-1., very poorly designed.

Response: No response required.

258. Comment: Economic Impact Assessment 4-1 By focusing solely on those allotments that did not meet the standards the analysis and comparison of the alternatives is flawed. It is anticipated that the County alternative would produce positive improvements in rangeland health, increase livestock stocking levels to preference and improve wildlife habitat on all grazing permitted lands. For proper disclosure and analysis the EIS should show how each alternative would effect all grazing permits not just those not meeting the standard.

Response: After considering the comment, the economic analysis has been adjusted. The initial analysis (in the Draft RMPA/EIS) of economic impacts of allotments not meeting the standard was incomplete. The allotments that currently met the standard were held constant in the analysis, instead of increasing in grazing capacity. This provided an incomplete picture of the cumulative economic impacts to the State of New Mexico. Those allotments, because they met the standard should not be penalized, but should also move towards a specific numeric target. Therefore, the analysis was completed by moving all allotments in the State, after 7 years of monitoring, toward a specific numeric target. The same stair step methodology was used, with one-third of the animal unit months (AUMs) being authorized every 7 years.

Also, after the initial analysis (in the Draft RMPA/EIS) an error in the initial methodology was also discovered. When a ranch had a 20 percent reduction in AUMs, those animal units created a negative economic impact to the economy and in year 10 those AUMs were re-authorized for the ranch. This was initially calculated as a negative impact for 10 years and then to year 21 it was a positive impact. However, this is an incorrect interpretation, because the re-authorization of those AUMs was only bringing the ranching unit back to the baseline animal units, equal to those in the scenario when no AUMs were reduced.

The other regions for the State of New Mexico have now been analyzed and incorporated into Chapter 4 and are included as a revised Appendix D in this Proposed Plan/Final EIS.

259. Comment: Page 4-6 The fatal flaw of the Draft EIS is contained in item 8. The BLM should have fully recognized after the 10th Circuit Court's ruling on the Brimmer Decision that preference numbers were not the objective of the BLM. Only the County alternative targets the preference numbers within its standards and guidelines. The Coalition strongly suggests that the BLM completely revise the analysis of impacts for the Final EIS. An alternative to incorporation of the changes in the Final EIS would be to prepare a supplemental EIS with the changes.

Response: It is expected that ecological conditions will improve over time and it is also expected that grazing capacity will improve over time. Moving toward a specific numeric target was an assumption used for all alternatives. Year 21 was the final year of analysis; it was assumed that the allotment should have achieved an ecological condition surpassing the standard and the allotment would be operated at full capacity. The important criterion for the analysis is not whether AUMs are attached to the base property,

but rather the number of AUMs or level of stocking on the allotment. The results of the 10 Circuit Count decision does not affect this analysis.

260. Comment: We have been disappointed at the repeated rejection of suggested incorporation of analysis by the state and counties. We also feel that certain issues (from memo of August 11, 1997) were not addressed. The following is from that memo:

As I communicated to you by phone and recorded message, I have located more than twelve citations in the Final EIS for Rangeland Reform 94 (RR'94) that call for local level NEPA documents for implementing the Standards and Guidelines, Significant new information that has occurred since the drafting of the Rangeland Reform 94 EIS:

> **1. The scientific basis for ecosystem management has changed significantly since 1993. The best available science at this point indicates that disturbance and constant change are the major driving forces in the biological composition of ecosystems, This leads the science of today to state there is no such things as "balanced ecosystem," "balance of nature," "ecosystem or rangeland health" or "properly functioning systems." These terms are now described as purely subjective.**
>
> **2. It has become apparent that the limited physical, biological, social, cultural and economic predicted outcomes described in the RR'94 have no accuracy what-so-ever.**
>
> **3. It has also come to light that the U.N. Agenda 21 has been adopted by this administration for implementation in land management decisions.**

Due to the above citations, circumstances and new information, the Fallback Standards and Guidelines or any other selected alternative will have to go through an entirely new EIS. Since Agenda 21 is a central policy for the Department of Interior through the Bureau of Land Management in directing management it must be included in the analysis for disclosure to the public, Congress and the decision maker.

Response: When site-specific implementing actions are proposed, local level National Environment Policy Act (NEPA) documents will be prepared, as needed. The BLM has four possible levels of NEPA documentation (categorical exclusion (CX), administrative determination (AD), environmental assessment (EA), or an environmental impact statement (EIS)). The EA and CX are the most often used in New Mexico.

In New Mexico, local standards and guidelines are not yet in place. The BLM may replace the fallback standards and guidelines with ones developed locally in the near future through the New Mexico Statewide Plan Amendment/EIS process. Based on our current knowledge, BLM has determined that the U.N. Agenda 21 has no effect on this EIS.

261. Comment: The failure to analyze the effects of the Human Dimension in all regions of the State and the demographic and geographic differences illustrates a lack of sensitivity for the ethnic, cultural and different ecosystems. To effectively analyze and document statewide effects, it is imperative to evaluate the impacts to the Native Americans and Spanish culture in all regions, not just the central.

Response: The other regions for the State of New Mexico have now been analyzed and incorporated into Chapters 3 and 4 and are included as a revised Appendix D in this Proposed RMPA/Final EIS.

262. Comment: In my opinion the economic impact to larger grazing permittees due to the loss of AUM's, and increased costs associated with extensive fencing, changes in management practices, etc. will be much more severe than is indicated by any of the alternatives.

Response: It was assumed that the larger permittee had greater flexibility due to a higher number of pastures and more intensified level of range improvement development, thus allowing them to minimize adverse impacts.

263. Comment: The service commends the BLM for its efforts to consider actions to improve upland and riparian conditions. However, the DEIS does not adequately analyze or compare the alternatives.

Section 1502.14(a-f) of the National Environmental Policy Act states that and Environmental Impact Statement should present the environmental impacts of the proposal and alternatives in comparative form thus sharply defining the issues and providing a clear basis for choice among options. There are not qualitative or quantitative differences that can be distinguished across the range of alternatives for this proposed project. The Service recommends that Chapter 4 of the DEIS be edited and revised to clarify and describe the differences between alternatives and their impacts.

The DEIS does not explain how the BLM will use grazing management to achieve the standards that are proposed in the various alternatives. There are no apparent differences in management across the action alternatives.

Response: The regulations for the development of State Director standards and guidelines came with criteria that must be met. Thus, there is only minimal opportunity to develop alternatives which result in a great difference in impacts to the physical and biological environments.

Livestock grazing will be managed under the guidelines to be in concert with natural ecosystem processes. The specific details of how the guidelines will be implemented will be developed by the local Field Office personnel in careful and considered consultation, cooperation, and coordination with affected permittees/lessees, landowners involved, the Resource Advisory Council, State of New Mexico agencies having lands or responsible for managing resources within the allotment, counties and the interested public.

<u>No Action Alternative</u>

264. Comment: The DEIS did not adequately analyze the effects of the No Action alternative in their report. The DEIS only lists the present condition. It is essential to analyze the No Action alternative to provide a baseline for comparative evaluation - to show the effects of relative changes for each alternative from the baseline (even if the baseline will not be implemented).

Response: The No Action Alternative was analyzed on pages 4-9 through 4-17 of the Draft RMPA/EIS. The No Action Alternative does provide a baseline for comparison of the other alternatives. The analysis on the No Action Alternative looked at both the short- and long-term impacts, as did the other alternatives. The last three sections on page 4-17 of the Draft RMPA/EIS referred the reader back to the current conditions in Chapter 3, which is also valid, as Chapter 3 provides a description of the existing environment. In completing the Proposed RMPA/Final EIS, BLM has included the financial analyses by region.

The intent of the National Environmental Policy Act (NEPA) is that prior to a decision being made, the decision maker reviews an analysis of the impacts of a proposed action on man's environment to a reasonable range of alternatives. Each analysis must have a baseline for comparison. For this RMPA/EIS, the No Action Alternative is the baseline from which the other alternatives are measured.

Cumulative impacts were analyzed in the Draft RMPA/EIS document on pages 4-68 and 4-69 of the Draft RMPA/EIS. The cumulative impacts are the same for each of the alternatives including No Action.

265. Comment: In the Draft, one of the most glaring discrepancy is found on 4-12 under "Waterfowl" ",..conversion of grain crops to cotton...". Have I missed the cotton crop in the San Juan River Valley? Yes, perhaps this is a simple mistake, but how many other mistakes are there in this document that could lead to the demise of people's livelihoods?

Response: The agricultural fields portion of this sentence has been deleted.

266. Comment: It is imperative to more thoroughly analyze the No Action Alternative to establish a control or baseline for comparative evaluation of selective changes for each alternative.

Response: The No Action Alternative was analyzed on pages 4-9 through 4-17 of the Draft RMPA/EIS. The No Action Alternative does provide a baseline for comparison of the other alternatives. The analysis on the No Action Alternative looked at both the short- and long-term impacts, as did the other alternatives. The last three sections on page 4-17 of the Draft

RMPA/EIS referred the reader back to the current conditions in Chapter 3, which is also valid, as Chapter 3 provides a description of the existing environment. In completing the Proposed RMPA/Final EIS, BLM has included the financial analyses by region.

The intent of the National Environmental Policy Act (NEPA) is that prior to a decision being made, the decision maker reviews an analysis of the impacts of a proposed action on man's environment to a reasonable range of alternatives. Each analysis must have a baseline for comparison. For this RMPA/EIS, the No Action Alternative is the baseline from which the other alternatives are measured.

Cumulative impacts were analyzed in the Draft RMPA/EIS document on pages 4-68 and 4-69. The cumulative impacts are the same for each of the alternatives including No Action.

Resource Advisory Council (RAC) Alternative

267. Comment: I am concerned that if the preferred alternative (RAC) is selected, that the BLM won't have the money to implement that standard to it fullest as it is identified. If the money is not there, it would be the industry (cattlemen) that would suffer from the alternative because cattle would have to be removed from the range. My interaction with the Taos Field Office shows their funding is limited or relatively poor, so if there are uplands or riparian areas that are in bad shape, where is the money going to come from to implement practices or activities that will remedy those situations?

Response: The BLM will be using Range Betterment Funds, Sikes Act Funds, and Cost Share Funds as well as other appropriated funds to assist in achieving the standards. However, it must be kept in mind that 43 CFR §4180.2 (c) states:

> *The authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year upon determining that existing grazing management practices for level of grazing use on public land are significant factors in failing to achieve the standards and conform to the guidelines that are made effective under this section.*

In some cases, the users of the public land, including ranchers, may choose to provide additional funding for range improvements that will facilitate management actions.

268. Comment: On page 4-24 where it talks about wilderness a partial quote states "Where sites not meeting the standard are included in WAs or WSAs, they would be expected to be a high priority for improved management." I disagree with this statement because it encourages permittees not to meet the standards. That way they get preference in improvements and practices that they might like to have done. So in order to get these practices done, maybe they should overgraze a little bit and maybe that will get little attention. That is what it says to me. Further down it refers to the standards and guidelines. I'm not aware of where the standards and guidelines for wilderness have been written yet, and I'd like to know where they are written and where I can find them and what document I should look in for them.

Response: The law and regulations governing Wilderness and Wilderness Study Areas place emphasis on preservation of wilderness values, physical characteristics, and natural processes. Therefore, where it is determined that these areas do not meet the standards, it will be important to return them to meeting the standard as rapidly as possible to prevent the compromise of the naturalness of the area and wilderness values.

The BLM Handbook 8560-1 provides guidance for the management of designated Wilderness areas. The BLM Handbook H-8550-1 Interim Management Policy and Guidelines for Lands Under Wilderness Review, 1995, provides guidance for the management of Wilderness Study Areas. These documents are available at BLM Offices.

269. Comment: **More emphasis should be placed on managing BLM lands for native wildlife and their habitat. I want to see people's communities thrive economically, however, if a land use is causing**

destruction to the public domain, it should be ended and other economic opportunities pursued. Rural communities need to be able to adjust to change, as we all have to from time to time. Most of the people in urban communities are also hard working and self-sufficient and many neighborhoods have community cohesion. These are not necessarily only traits of ranching communities and should not be a consideration when determining a grazing management plan for public land (pg 4-31).

Response: No response required.

270. Comment: On page 4-19 it is suggested that the following words be inserted in the <u>Upland Vegetation</u> section of the RAC ALTERNATIVE (PROPOSED ACTION) (words to be inserted are all caps).

<u>Upland Vegetation</u>

Under the RAC Alternative NO TREATMENTS IN VIOLATION OF THE WILDERNESS ACT SHOULD BE ALLOWED IN BLM WSAs hereafter the Proposed Action, the focus of management and the application of grazing guidelines would occur on public land not meeting the standard due to grazing. Management changes would include more water, fencing, land treatments, and possible deferment on areas not meeting the standard. In the short term, little improvement would be expected. However, in the long term, measurable improvement in vegetative cover and composition would be expected due to grazing management practices. Additionally, NATIVE vegetation would be enhanced through the use of mechanical and chemical manipulations in both the short and long term. These improvements would occur mostly within the desert and woodland biomes in MLRAs 36, 42, and 70.

Response: All land treatments in a Wilderness Study Area (WSA) would be in concert with the Interim Management Policy for Lands Under Wilderness Review. The BLM Handbook H-8550-1 <u>Interim Management Policy and Guidelines for Lands Under Wilderness Review, 1995,</u> provides guidance for the management of WSAs. This document is available at BLM Offices.

271. Comment: On page 4-19 it is suggested that the following words be inserted in the Grazing Administration section of the RAC ALTERNATIVE (PROPOSED ACTION) (words to be inserted are all caps, while words to be removed are also in caps but inside ( ).

GRAZING ADMINISTRATION

Under the Proposed Action, livestock use levels are expected to remain approximately at the seven-year average over the short term, similar to the No Action Alternative. Adjustments in livestock numbers are expected to be upward on some allotments and downward on others. Adjustments are not expected to be large, either upward or downward because in general, current permits and leases are consistent with grazing capacities established through BLMs rangeland monitoring program. However, fluctuation in use levels can be expected due to a variety of factors such as weather conditions and the price of livestock. As forage conditions and lands improve in health and begin to properly function, (INCREASES IN LIVESTOCK USE CAN BE EXPECTED) LIVESTOCK DENSITY WILL BE EVALUATED TO DETERMINE CARRYING CAPACITY OF LAND. The long-term AUM projection....

Response: The sentence the commentor suggested be changed has been modified to read as follows:

> As forage conditions and lands improve in health and begin to properly function, the grazing capacity can be expected to increase. Increases in forage allocated for livestock use may be authorized when it is reflected in monitoring data over time and consistent with the objectives of the land use plans.

272. Comment: On page 4-20 it is suggested that the following words be inserted in the <u>WILDLIFE</u> section of the RAC ALTERNATIVE (PROPOSED ACTION) (words to be inserted are all caps, while words to be removed are also in caps but inside ( ). Also have a problem which the third sentence of the wildlife write-up which states: "The construction of livestock management facilities outside of the riparian/wetland

area would protect and improve riparian and wildlife habitats." No construction of livestock management facilities should be done in WSA's. Instead you should be practicing deferment.

WILDLIFE

Implementing the proposed standards and guidelines under the Proposed Action would benefit wildlife in the short and long term in both upland and riparian areas. The improvement of riparian habitats currently functioning at risk with a downward trend would benefit wildlife, since these areas are the most diverse and productive areas. The construction of livestock management facilities outside of the riparian/wetland area would protect and improve riparian and wildlife habitats. Over the long term, standards and guidelines would help ensure that site-specific, as well as landscape-level habitat needs are considered when developing AMPs. The proposed standards and guidelines would allow for a (SLIGHT INCREASE) RE-EVALUATION in actual AUMs over the long term, but would consider and protect critical wildlife resources. Livestock would be used as a management tool IN MLRA's WHERE PAST LAND USES HAVE NOT ALTERED THE NATURAL BIOME to help restore and maintain sustainable habitats, increase biological diversity and vegetative productivity, and promote proper functioning uplands and riparian areas.

The field offices have identified oil and gas leasing development and rehabilitation, Rights-of-ways and off-highway vehicle and other uses as other causes for not meeting the biotic standards. These activities and associated decisions would not be resolved under the proposed grazing guidelines, but RMP decisions would be commensurate with public health standards, thereby ensuring wildlife management issues and concerns would be recognized and evaluated to maintain and protect wildlife habitat.

Response: The suggested changes outlined for page 4-20 of the Draft RMPA/EIS were considered, however, they reflect guidelines for livestock grazing not in the Resource Advisory Council (RAC) Alternative. Therefore, it would be inappropriate to insert them.

273. Comment: On page 4-25 it is suggested that you discuss increasing protection to archaeological sites.

Response: The BLM has an ongoing program of site monitoring and surveillance. Project specific surveys are performed to ensure that sites are not damaged by BLM funded or permitted activities. For example, as Environmental Assessments (EAs) are prepared for individual grazing permits/leases archaeological data are reviewed to insure damage to known sites is limited.

274. Comment: On page 4-25 in the 1st sentence of the last paragraph it states: "If the standards and guidelines go into effect, it is anticipated that the BLM, in some areas of the state, would receive increased applications for land exchanges or sales." It is suggested that BLM limit or decrease sales of BLM land into private hands.

Response: The Federal Land Management and Policy Act (FLPMA) allows for the disposal of public land through sales or exchanges if it is determined through the land use planning process that such disposal would be in the public interest. FLPMA, requires public surface to remain under BLM administration if (1) resources of national, state, or regional significance are found on them and (2) the possible adverse effects of the adjustment action cannot be mitigated.

Each New Mexico BLM Field Office has gone through the land use planning process as required by FLPMA. A result of that process was the identification of retention, disposal, and acquisition zones of public land in each field office. A list of the land ownership adjustment areas can be found in the Resource Management Plans (RMPs) for each BLM Field Office.

The disposal zones generally contain tracts of isolated or scattered parcels of public land and resources that are difficult to manage by BLM staff. Where possible, public land identified for disposal will be exchanged for non-Federal lands that have been identified for acquisition to enhance BLM resource management programs (see the Lands and Realty section of Chapter 3).

While there is a possibility the BLM could receive more applications for land exchanges or sales it does not mean that all those applications will be processed or approved. Applications need to be in conformance with the RMP decisions and should fall within the designated disposal and acquisition zones.

Processing land ownership adjustments, in particular exchanges or sales, is expensive and time consuming. All exchange or sale proposals must be conducted in conformance with FLPMA and NEPA and will require extensive public review (minimum of 120 days per exchange). Because of the cost and time involved in processing exchanges or sales and the continued reduction in Bureau staff and budget, few if any exchanges will be processed.

275. Comment: On Chapter 4, pages 4-25 &26 the Bureau of Land Management (BLM) states that standards would apply to oil and gas yet also stated it would not amend mineral resource and minerals that could be leased because of existing statues and regulations. However, 43 CFR 3100 regulations on oil and gas gives the BLM authority to amend land use plans. Such plans as the Environmental Assessments and the Environmental Impact Statements could change State and Local BLM RMP's. It is our understanding the BLM is now receiving comments on the above regulations from oil and gas on proposed changes of regulations for federal land. Implementation of these regulations in the proposed changes by the Federal Government may affect the standards and grazing guidelines in the State RMP. In addition, the State of New Mexico and Local County Governments may also be affected. The County requests that you respond to these questions and comments to this regulation and proposed changes.

Response: While BLM has the authority to amend land use plans (43 CFR Part 1610.5), implementation of the Standards for Public Land Health (Standards) will not create the need to amend mineral resource decisions in current Resource Management Plans (RMPs). As stated in the RMPA/EIS, mineral resource development on Federal land in New Mexico is already restricted to protect Public Land Health through implementation of lease stipulations and surface use requirements. The commentor is correct in that an RMP can be amended, as justified in environmental documents such as this RMPA/EIS. However, implementation of the Standards will not create a need for modification of the land use plans with regard to oil and gas development.

There is nothing in the proposed revisions to 43 CFR Part 3100 that would affect, or in turn, be affected by implementation of the Standards. An analysis of the proposed 43 CFR Part 3100 is beyond the scope of this EIS. Comments on this proposal, as published in the *Federal Register* on December 3, 1998, were due by June 4, 1999. A response to such comments will be published at a later date.

276. Comment: On page 4 - 19, Soils: All soils in New Mexico would respond differently to drought or moisture, not just upland soils.

Response: In the discussion about upland soils, BLM tried to express the idea that a healthy robust soil-vegetation ecosystem could withstand the stress of drought or excess moisture far better and with far less change than a site that is in poor health. This would be true for all soils in New Mexico not just those on public land.

277. Comment: The analysis states "...for the long term, communities and ranching operations may be more stable and in better condition financially, socially and culturally under the RAC Alternative when compared to the Fallback or County Alternatives." (page 4-31). While this statement is correct based on the analysis, if the ranch is unable to survive the short term, the long term is irrelevant.

Response: The BLM agrees that if a rancher goes out of business, he/she is not expected to enjoy the prosperity of the long-term. To provide mitigation and to ensure the least impact possible, grazing programs will be developed in careful and considered consultation, coordination and cooperation with the permittees and lessees and other designated parties.

278. Comment: Throughout the DEIS document the BLM makes erroneous claims that the RAC alternative is the better alternative for the public land rancher "in the long run". This is false due to their erroneous assumption that the historical BLM adjudicated preference grazing AUMs (Animal Unit Months) would be used as long range target numbers (goals). The recent 10 Circuit Court of Appeals overturned the adjudicated preference policy. Hence,

BLM has rejected the policy of adjudicated preference numbers, invalidating the impact analyses. Also, the analysis does not include the impacts of those permits that do meet the standards and will move towards adjudicated preference within the analyzed timefame. In short, this problem invalidates BLM's conclusion that the RAC is the best alternative for the rancher and for New Mexico. The DEIS is an inadequate impact analysis, failing to accurately display the full significant effects of the Fallback, RAC and County alternatives.

Response: The grazing capacity for livestock grazing is presently determined through monitoring and evaluation procedures. Permits and leases are adjusted either up or down to match the grazing capacity identified through the monitoring and evaluation procedures. The RMPA/EIS assumed this process would continue.

Since it is expected that ecological conditions will improve over time it is also expected that grazing capacity will improve over time. Moving toward a specific numeric target was an assumption used for all alternatives. Year 21 was the final year of analysis; it was assumed that the allotment should have achieved an ecological condition surpassing the standard and the allotment would be operated at full capacity. The important thing for the analysis is not whether AUMs are attached to the base property but rather the number of AUMs or level of stocking on the allotment. The results of the 10 Circuit Count decision does not affect this analysis. Using this methodology, each alternative was analyzed equally, so they are each comparable to the baseline.

The summary in the Resource Advisory Council (RAC) Alternative states: However, for the long-term, communities and ranching operations may be more stable and in better condition financially, socially and culturally under the RAC Alternative when compared to the Fallback or County Alternative. This conclusion is based on a comparison of economic activity, personal income, and employment among the alternatives for year 21 (see Tables 4.1a, 4.1b, 4.2a, 4.2b, 4.3a and 4.3b in the Draft RMPA/EIS). These tables have now been revised with an updated analysis (see chapter 4 economic sections for each alternative) in the Proposed RMPA/Final EIS. The revised analysis shows that economic activity, personal income and employment will be highest under the County Alternative.

279. Comment: P. 4-29. Table 4.la is extremely difficult to track, fix. In general the whole economic analysis is bogus. You don't seem to be able to adequately justify much of anything.

Response: The intent of the EIS is not to justify any particular action, but rather to analyze the various standard and guideline alternatives. There is a lot of information presented in Table 4.la. The tracking is logical and consistent with the established methodology presented on page 4-4 of the Draft RMPA/EIS.

280. Comment: Page 4-24 states we may have lost the capability to recover the potential natural community due to overgrazing. I believe your efforts to treat the land with mechanical and chemical manipulation are not cost effective. We can not afford to sustain these allotments with low production potential. So I reject the proposed action.

Response: The BLM's goal is to invest in economically and environmentally sound rangeland improvements to improve the lands for multiple use purposes. Prior to implementing an improvement, an Environmental Assessment (EA) and a benefit/cost analysis are prepared to determine the best format for the project. One of the priorities for using rangeland improvement funds is to protect and enhance critical resources and values.

<u>County Alternative</u>

281. Comment: We support the County alternative because we feel it is the most practical to achieve the goals and objectives and standards and guidelines with the least amount of disruption or displacement of livestock.

Response: No response required.

282. Comment: The County Alternative is the position we believe will have the least amount of impact on the custom, culture, social, economic, and tax payers' well being of our County. This alternative has the same goals as the other alternatives but

proceeds slower to the goals, which lessen the fracture of tax base and hardship on permittees. We believe this will give better decision making at the local level.

Response: No response required.

283. Comment: We favor the County Alternative evidenced by having the least impact on custom, culture, social, economic and resident taxpayers' well-being in Lincoln County. We feel the process is rushed in nature and will require major changes if not all these alternatives are utilized.

Response: No response required.

284. Comment: The analysis on water quality missed the point of the County Alternative on water quality issues. The County Alternative was designed to put information and action in the hands of local entities, most particularly grazing permittees. All alternatives are so broad they can't be compared to the County Alternative so no real conclusion could have been reached.

Response: The State and BLM have welcomed more local involvement in water quality issues at the local level. However, the BLM is still responsible for managing activities on public land to meet New Mexico water quality standards.

285. Comment: It is impossible to compare the County Alternative to other alternatives and finding no differences, therefore the Area Analysis is useless.

Response: No response required.

Fallback Alternative

286. Comment: I urge that the Fallback alternative be selected as the standard for New Mexico for Public Land Health. With regard to the issues of improving management activities to address our dwindling and seriously impacted riparian habitats in the state and to benefit wildlife in the short term and long-term in both uplands and riparian areas it appears that the Fallback alternative, has the distinct lead in this concern. Adverse effects would occur from the selection of any of the other alternatives discussed.

Response: The intent of the Draft RMPA/EIS was to analyze the alternatives, not to make a selection.

287. Comment: You may be aware that the focus of the Public Land Foundation is to: Encourage the public support of keeping the public land public and professionally managed; to Foster effective management and stewardship of the public land and resources for the benefit of all the public; to Encourage optimum implementation of the Federal Land Policy and Management Act (FLPMA), which requires among other objectives, environmental enhancement, long-range land-use planning, research, rehabilitation of damaged lands and resources, coordination with state and local governments, and to Encourage professional performance by all BLM employees.

We have found all of these issues present in the alternative Standards and Guidelines and commend the proponents for their rational approaches. We also commend the Bureau of Land Management for the progress of the agency and for continuing the precepts established by the Grazing Service, BLM's predecessor. This progress is evident in the statement, "Under the Fallback Alternative livestock use levels are expected to remain approximately at the seven-year average over the short term, similar to the No Action Alternative. Adjustments in livestock numbers are expected to be upward on some allotments and downward on others. Adjustments are not expected to be large because in general, current permits and leases are consistent with grazing capacities established through BLM's rangeland monitoring program. The long term AUM projection is expected to be around preference which is 1, 968,341 AUMs.

We believe the alternative that best achieves the physical and biological goals and values of the public land must be selected which in turn will provide the greatest economic return to all users.

Response: No response required.

288. Comment: Page 4-46 of the DEIS states: "Under this alternative [Fallback] 480 permittees could be affected [the most of any alternative]. Permittees most affected by the guidelines would be those with small

one-pasture allotments where there is continuous, season-long grazing. Continuous, season-long grazing is allowed to occur only when it has been demonstrated to be consistent with achieving a healthy, properly functioning ecosystem." This statement is inherently contradictory. According to the DEIS, implementation of the Fallback alternative would be the most restrictive and affect the most permittees, the majority of which practice season-long grazing. However, the DEIS maintains that season-long grazing is only allowed to occur if demonstrated to be consistent with achieving a healthy, properly functioning ecosystem. The standards and guidelines themselves are intended to improve rangeland and riparian conditions to achieve a properly functioning condition. Thus, it is unclear how the majority of allotments potentially affected by Fallback guideline implementation could have been achieving a healthy, properly functioning ecosystem.

Response: The allotments affected by the guidelines are those that have lands that are not meeting the standards. Where a small one pasture allotment has lands that do not meet the standards they would not be allowed to have season long grazing, unless the season long grazing program has been demonstrated on other allotments to be able to achieve a healthy ecosystem. The problem of not meeting the standard could possibly be solved in two ways. They include reducing stocking numbers, with the exist grazing program or by implementing a deferred grazing program, with appropriate stocking levels.

289. Comment: The Department recommends implementation of the Fallback standards and guidelines for the following reasons:

1. As stated on page 4-46, this alternative would focus management activities on more acres for wildlife habitat protection than the other alternatives.
2. The greatest number of riparian segments would be improved and restored to Proper Functioning Condition (PFC). Of 154 riparian segments classified as nonfunctional or functional-at-risk with a downward trend, or where the trend is not apparent, 107 riparian segments would be improved, 39 to PFC. The RAC alternative would improve 68 riparian segments, restoring 32 to PFC. The County alternative does not state the total number of riparian segments improved, but would also restore 32 segments to PFC.
3. Riparian segments would be improved and restored in the least amount of time.
4. The Fallback alternative allows for a slight increase in actual AUM' s over the long-term, but considers and protects critical wildlife resources. The RAC alternative also protects critical wildlife resources, the County alternative does not.
5. The Fallback alternative incorporates landscape-level, as well as site-specific (allotment level) habitat needs when developing Allotment Management Plans (AMP's). The RAC alternative also considers landscape-level habitat needs; the County alternative does not.
6. Soil conditions will undergo the greatest improvement under the Fallback alternative. The RAC alternative provides for better soil conditions than the No Action or County alternatives, from the implementation of grazing guidelines on more acres. The County alternative will provide for slightly more improvement to soils than the No Action alternative.
7. Although not clearly defined in the analysis for water and upland vegetation, the Fallback alternative will most successfully improve surface water quality by reducing non-point source pollution, increasing water retention and associated aquifer recharge, and reducing surface erosion and stream sedimentation, which will improve habitat quality and quantity for aquatic life.
8. Although not stated or adequately analyzed in the Big Game section of each alternative, based on enhanced conditions of other resources such as riparian and upland habitats, the Fallback alternative will provide the best long-term opportunities for increasing deer herds, a primary management goal of the Department.

Response: New Mexico Department of Game and Fish's recommendation, no response required.

290. Comment: The Service recommends the implementation of the Fallback Alternative. According to the DEIS, the standards and guidelines under the Fallback Alternative would focus management activities on the maximum amount of wildlife species and their habitats than the other alternatives. The most significant improvements to vegetative and soil conditions, water quality and key wildlife habitats occur under this alternative. Also, the largest amount of riparian habitat would be improved in the lease amount of time under this alternative.

Response: U.S. Fish and Wildlife Service's recommendation, no response required.

<u>Common To All Alternatives</u>

291. Comment: An area I personally do not feel was given enough written space in the document was the impacts made to minorities and low income, from the Civil Rights Act of 1964.

Response: The Field Solicitor determined that the alternatives are consistent with the Civil Rights requirements in laws, Executive Orders, regulations and policies, and the analysis is considered complete and adequate.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to human dimension issues with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive Orders and County ordinances. The Proposed Plan/Final EIS reflects the widest consensus of the requirements and relationships.

292. Comment: On page 4-56, items 6 and 7 is puzzling to me. It seems to give preference to military uses on public land. Also it looks like they may be excusing the military from the taking rules. Need a better explanation of that.

Response: This comment concerns the wording found in Executive Order 12630 of March 15, 1998. The Executive Order does not give a preference to military use on public land. The comment requests further explanation on the subject of military relationships to takings rules. However, the proposed action and alternatives do not involve military use of the public land. Therefore, this document is not the proper forum for discussion of that issue. The standards applied to the lands and the various uses, including military use would have to be in concert.

293. Comment: There's no cumulative impact discussion, and this is normally seen and addressed in EIS documents. When one combines recreational activities, mineral extraction, oil and gas exploration and extraction, off-road vehicle abuses and top that off with grazing, these are impacts that will affect the entire ecosystem and the entire environment. This particular point seriously needs to be considered to be addressed in the final document.

Response: Cumulative impacts were analyzed in the Draft RMPA/EIS document on pages 4-68 and 4-69 under the heading of Cumulative Effects.

294. Comment: The Human Dimension is weak and needs to be analyzed deeper on the following criteria: Equity Analysis, Taking, Civil Right Burden, Environmental Justice, Social Well-being, and Cultural Stability.

Response: The Field Solicitor reviewed the document and determined the alternatives are consistent with the laws and/or Executive Orders for Equity Analysis, Private Property Rights including Taking, Civil Right Implications, Environmental Justice, Social Well-being, and Cultural Stability and is considered complete and adequate.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to human dimension issues including social well-being and cultural stability with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive Orders and County ordinances. The Proposed RMPA/Final EIS reflects the widest consensus of the requirements and relationships.

295. Comment: The draft has not fully analyzed the content and impact that could affect individuals and

County Government under a partial list of federal laws. These laws include NEPA, CEQ, EO 12898 Environmental Justice, EO 12630, PRIA and Taylor Grazing Act, and FLMPA. The DEIS should either be redone or a supplemental EIS conducted.

Response: This comment is broad in nature and because it gives no specifics is hard to respond to in detail. The BLM has reviewed the above Federal laws, regulations and Executive Orders in the preparation of the EIS. The pertinent parts were covered in the EIS.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to human dimension issues with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive Orders and County ordinances. The Proposed RMPA/Final EIS reflects the widest consensus of the requirements and relationships.

296. Comment: The document has failed to follow the Taylor Grazing Act (43 USC 315), PRIA 1978, FLPMA 1976 - PL 94-579 and NEPA.

Response: This comment is broad in nature and because it gives no specifics is hard to respond to in detail. The BLM has reviewed the above Federal laws in the preparation of the EIS. The above laws and implementing regulations were followed in the development of the EIS.

297. Comment: We strongly urge BLM to discuss the economics of each AMP with the grazing user and strive for an agreement that will mitigate the users loss from any adjustment necessary to accomplish the goal of healthy public land.

Response: The grazing regulations 43 CFR §4120.2(a) provides for the following:

> *An allotment management plan or other activity plans intended to serve as the functional equivalent of allotment management plans shall be prepared in careful and considered consultation, cooperation, and coordination with affected permittees or lessees, landowners involved, the resource advisory council, and State having lands or responsible for managing resources within the area to be covered by such a plan, and the interested public. . . .*

Specific mitigation measures to be used can be identified during preparation of the grazing activity plan. As indicated in the Draft RMPA/EIS on pages 4-65 through 4-68, when BLM has feasible mitigation measures that are fiscally prudent and reasonably available to BLM and are in concert with BLM Congressionally granted authorities, BLM will incorporate the mitigation measures.

298. Comment: Your agency has a statutory obligation to comprehensively assess and analyze each and every one of these connected, cumulative, or similar actions or impacts as they are associated with the public resources addressed in this Draft Plan/EIS, including actions of other agencies that have cumulative impacts and actions that would not proceed without the presence of the subsidized grazing activities that are represented as being the actions under study in the Draft Plan/EIS.

Response: Cumulative effects are addressed on pages 4-68 through 4-69 of the Draft RMPA/EIS.

299. Comment: The development and maintenance of these costly "livestock support" functions within your own agency are "interdependent parts of a larger action and depend on the larger action for their justification" and cumulative actions, "which when viewed with other proposed actions have cumulatively significant impacts." In this context, a complete and thorough analysis of these functions, a statement of their costs, and a full disclosure of their organizational and budgetary impacts on your overall resource protection responsibilities need to be included within this Draft Plan/EIS.

Response: This document is not site-specific and the various developments for livestock support functions within BLM are not known. Thus, a complete and thorough analysis of these functions, a statement of their costs, and a full disclosure of their organizational and budgetary impacts on BLM's overall resource protection responsibilities cannot be completed at this time. There is no requirement to do such an analysis as part of an EIS.

300. Comment: The EIS is void of mitigation measures that would reduce the economic, financial, social cultural effects on ranch families and rural communities.

Response: Mitigation measures are discussed in Chapter 4 on pages 4-65 through 4-68 of the Draft RMPA/EIS. As indicated in the Draft RMPA/EIS, when BLM has feasible mitigation measures that are fiscally prudent and reasonably available to BLM and they are in concert with BLM Congressionally granted authorities, BLM will incorporate the mitigation measures. Specific mitigation measures to be used can be identified during the preparation time for the grazing activity plan.

301. Comment: This document does not address the cumulative effects from other federal actions, such as the Bureau of Reclamation, U.S. Forest Service, U.S. Fish and Wildlife Service, etc. At this point in time the Rio Grande Silvery Minnow and the Southwestern Willow Flycatcher could possibly affect our ranch. Aside from the effects of possible federal actions, there is no discussion as to the cumulative effects from essentially seven years of drought nor low beef prices.

Response: The cumulative effects section has been reviewed, and it is acknowledged that cumulative effects could result from these actions including, weather patterns, and the average price received for agricultural products over a 10-year period.

It is also acknowledged that in some cases that protection and recovery of Federally-listed species may have an impact on public rangeland users and their enterprises requiring adjustment in the management of actions. An example would be the silvery minnow.

302. Comment: No lists of statutory compliance were listed in the document, which would define what requirements are mandated under the law by the agency.

Response: The BLM complies with many laws in their programs. There is no requirement that BLM list laws that guide the agency. Listing statutory compliance would lengthen the RMPA/EIS and BLM fails to see how a listing would improve the document.

303. Comment: The Human Dimension analysis was left out in the form as written by the State team. The BLM said as written, the Human Dimension was unacceptable. Early in the process in November of 1997, it was agreed, that the State would write this section. The BLM's retort in the final months of the process was, they would rewrite the Human Dimension with the State Team, but it would be subject to changes by their editors and lawyers. Because of the conflict, some counties submitted a separate document (per NEPA) in the form of an EIR. These were not considered nor were they printed.

Listed are some but not necessarily all requirements in the Human Environment.

A. E.O. 12630
B. E.O. 12898
C. E.O. 12291
D. E.0.13045
E. 18 U.S.C. 241 and 45 (A) - (1)
1994 C.R.A. Title VII
F. Regulatory Flexibility Analysis
G. Duplication of Effort (NEPA)

By not doing a complete analysis, irreparable and irreversible damage can be caused to the counties customs and culture and also, make the EIS incomplete.

Response: The CEQ regulations direct that the responsibility for quality of the EIS resides with the Federal agency, therefore the document published has to be consistent with legal theories and interpretations of the Department of the Interior. Where the State Team analysis was based on legal theories that were inconsistent with Department of the Interior interpretations of Federal laws, regulations and Executive Orders, the Department of the Interior interpretations were used.

Prior to sending the document to the printer, Catron and Sierra Counties provided copies of their Environmental Impact Reports (EIR) to the BLM. The counties provided the EIRs for BLM review, requested that BLM enter the report in the records and make they available should the public request to review them. They did not ask that the documents be printed as a part of the document.

In the interest of full disclosure and cooperation, the BLM offered to print any differing views that the State Team and the Cooperating Counties had in an Appendix to the Draft RMPA/EIS (Appendix F), however none were provided to BLM prior to sending the document to the printer.

In December 1998, after the Draft RMPA/EIS had been sent to the printer, the BLM received the Otero EIR and a request to include the EIR in the BLM Draft RMPA/EIS. Because the document had already gone to the printer, it was not possible for the BLM to consider printing the EIR as a part of the Draft RMPA/EIS. Consistent with the requests of Catron and Sierra Counties for the BLM to include their EIRs in the BLM records, the BLM included the EIR in the record and made the Otero County EIR available for the public should they request to review it.

In February 1999, the BLM received an EIR from Hidalgo County for BLM consideration. This document was made a part of the record and was made available to the public as were the other three received.

304. Comment: The Cumulative Effects discussion addresses primarily the potential short-term effects of implementing the Proposed Action or other alternatives on the livestock industry, but does not factor in the cumulative benefits of improved surface water quality and groundwater recharge, soil retention and stability, decreased soil erosion and surface water runoff, more productive wildlife habitats, and increased hunter and non-consumptive wildlife user satisfaction.

Response: The BLM has modified the cumulative effects analysis to include the concepts identified by the comment.

305. Comment: The BLM failed to analyze indirect and cumulative social, cultural and economic effects of each alternative as well as failed to address irreversible and irretrievable impacts (CEQ 1508.7, 1508.8(b) and 1508.27). The BLM NEPA Handbook (Chapter V #2) CEQ states:

> ***The EIS must identify all the indirect effects that are known and make good faith effort to explain the effects that are not known but are "reasonably foreseeable. " (FMAQ#18).***

The DEIS is void of analysis of the indirect and cumulative effects analysis for each of the alternatives. This is exemplified in their removal of key phrases in chapter three analyses of the urban impacts on healthy rangelands. This information was included in the County's EIR. BLM went out of its way to play down the relative effects of urbanization by stating that these lands occupy less than 3% of the total BLM lands. While this low percentage should be questioned, the point is not the percentage of land impacted, rather the degree and cumulative impacts. Academic research and BLM field reports show that urban impacts have the potential for irreversible and irretrievable impacts on healthy public rangelands. The BLM surgically removed any reference to this potential for indirect, cumulative and irreversible and irretrievable effects discussed in the County's EIR. By removing this analysis and language it eliminates the point that this is disproportionate harm to the ranchers. Without being able to show that other public land users are contributing to adverse effects to healthy public lands, it conceals the fact that the public land rancher is being singled out to bare the brunt of the costs.

Response: The Draft RMPA/EIS on page 3-57 recognizes the current effects of urbanization on public land. Although the impacts can be high, the majority of public land is not near urban areas and a realistic description was provided.

The Standards will establish condition targets for the land. All uses of the public land whether commercial or non-commercial will be managed to be in concert with the standards. For example, Off Highway Vehicle as well as ranching activities will be managed to be consistent with the standards. Activities that are presently managed in a manner consistent with the standard will have very little if any change or adverse impact from establishing the standards. The livestock grazing guidelines will apply only to land where the standards are not being met due to current livestock grazing practices. Not all allotments will be impacted by the grazing guidelines.

There is not disproportionate harm to ranchers because all uses of the land will have to be consistent with the standards, and the only ranchers and other users affected will be those currently conducting activities or practices that are not in concert with

achieving the standards. Although the guidelines will not affect all public land ranchers and not all ranchers affected by the guidelines will choose to go out of ranching, there may be ranchers that elect to sell the ranch.

When a ranch is sold, it may mean a permanent change in the lifestyles and traditions of the individual. This will be recognized in Chapter 4 of the Proposed RMPA/Final EIS in a section identified as Irreversible and Irretrievable Consequences.

306. Comment: The Human Dimension analyses are designed to determine if there are significant adverse effects from each alternative in order to consider mitigation measures to show ways to reduce or eliminate harm to the Human Environment (CEQ 1508. 14, 1502. 14(f), 1502. 16(h) and 1505.2c). BLM did not develop mitigation measures for addressing and alleviating significant negative effects, even after the State ID Team requested measures be identified to provide guidelines for implementation of Standards and Guidelines and after the State/Counties requested to participate in mitigation planning. Hence, the BLM removed the only opportunity to reduce or eliminate significant adverse effects and provide for a balance between socioeconomic and biophysical impacts (NEPA 102).

Response: Potential mitigation measures and the feasibility of each are discussed starting on page 4-65 of the Draft RMPA/EIS. The same mitigation measures apply to each of the alternatives analyzed in the section called Common to All Alternatives. The State/County Teams participated by helping the BLM identify possible mitigation, while the BLM determined how feasible the mitigation would be. Specific mitigation measures to be used can be identified during preparation of the grazing activity plan.

The BLM and State Teams further discussed implementation and mitigation procedures during preparation of the Proposed RMPA/Final EIS. Additional details concerning implementation and mitigation procedures are included in the Proposed RMPA/Final EIS.

307. Comment: The Draft EIS is flawed in the following respects:

1. A cumulative impact analysis is absent for all alternatives that describes the current and reasonably foreseeable impacts from other federal agencies and state actions and;
2. Item 1 goes directly to the issue of significance. Absent the cumulative impact analysis, the context and intensity of impacts on the affected environment cannot be properly disclosed; and
3. Only those permits that do not meet the standards were analyzed. This fails to disclose the increase in benefits to rangeland health and state and county economic stability statewide; and
4. With the 10th Circuit decision on the Brimmer decision the Fallback Standards and Guidelines are bared from moving towards stocking of livestock to preference levels since preference no longer exists. The RAC alternative is faced with a similar problem in that the RAC alternative did not contemplate reaching preference stocking levels. The County alternative has the assumption that all permits would move to full livestock preference levels as range conditions allowed. Therefore, the County alternative would provide for the best long term improvement of the range resources and economic viability of ranching units by creating incentives to improve rangeland health; and
5. The Coalition requested on several occasions that the impact analysis include MOU's, international treaties and agreements (specifically Agenda 21) that administratively give direction to the BLM. The absence of these items fails to disclose to the decision maker and the public the authority and basis of analysis the BLM is using for the proposed action; and
6. Appendix B-1 presents the anticipated RMP changes created by the various alternatives which form the basis of analysis in the EIS. It is apparent that there was a lack of consistency in interpreting the requirements of each alternative. Due to this inconsistency, the entire analysis is flawed.

Response: Items 1. and 2. The cumulative analysis on pages 4-68 through 4-69 of the Draft RMPA/EIS addresses the cumulative effects of other agencies actions that BLM is aware of. The commentor did not provide specific additional actions by other agencies he or she may be aware of. State and local agencies did not provide any specific additional actions to be included.

Item 3. The economic analysis has been modified to include the improvement of all lands.

Item 4. The commentor indicates there were different assumptions used for the County alternative than the other alternatives for stocking of the range. All alternatives used the same assumptions regarding methods of determining stock levels and level of stocking at year 21. Specific numeric targets were used.

Item 5. The authority for the analysis of the proposed action has been inserted into the document. The authority for the analysis was based on laws and regulations. The analysis approach and methodology was also described at the beginning of Chapter 4, pages 4-1 through 4-6 of the Draft RMPA/EIS.

308. Comment: There are several issues and sections of the DEIS that do not comply with NEPA nor the CEQ implementation guidelines. I feel these are substantive in nature and that the DEIS should be revised and once again submitted to the public for comments. BLM grazing regulations became effective 8/21/95. Litigation challenging their legality is still pending. The regulations are enforceable if they have followed the Administrative Procedures Act (APA), NEPA, TGA, FLPMA, PRIA and other applicable laws, regulations and Executive Orders. The BLM has refused to recognize adjudicated preference numbers, authorized by the TGA so the impact analysis within the DEIS grossly under estimates the potential significant adverse effect.

Response: This EIS analyzes alternatives for State Director developed standards and guidelines. The EIS is not intended to analyze all factors within the final regulations which were published February 22, 1995.

Preference reflects a level of animal unit months (AUMs) historically attached to the base property. The important thing for the analysis is not whether AUMs are attached to the base property but rather the number of AUMs or level of stocking on the allotment.

309. Comment: The DEIS is insufficient and not in Compliance with Executive Order (EO) 12630:

Section l,(a),(b),(c)
Section 2,(a),03),(c)
Section 3,(a),(b),(c),(d),(e)
Section 4,(a),(1),(2),(b),(c),(d),
(1),(2),(3),(4)
Section 5,(a),(c),(d)

The Attorney Generals Guidelines for the Evaluation of Risk and Avoidance of Unanticipated Takings and; The Attorney Generals Supplemental Guidelines to the Risk and Avoidance Unanticipated Takings for the U. S. Department of Interior.

Additionally non-compliance with 18 USC 241 and 245 (a), 1964 Civil Rights Act, Title VII, EO 12898, EO 12291, EO 13045 and 5 USC 603 and 604.

Response: In the Draft RMPA/EIS, where the State Team analysis was based on legal theories that were inconsistent with Department of the Interior interpretations of Federal laws, regulations and Executive Orders, the Department of the Interior interpretations were used. In the interest of full disclosure and cooperation, the BLM offered to print any differing views that the State Team and the Cooperating Counties had in an Appendix to the Draft RMPA/EIS (Appendix F), however none were provided to BLM prior to printing the Draft RMPA/EIS.

The RMPA/EIS contains an analysis on Executive Order 12291, Civil Rights and supporting laws and issues concerning Civil Rights, Executive Order 12630, Executive Order 12898 in the section called Common to

all Alternatives. In preparing the Proposed RMPA/Final EIS the BLM reviewed 18 USC 241 and 245, 5 USC 603 and 604, plus Executive Order 13045 and found no conflicts with the proposed program and the direction found in these documents.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to human dimension issues with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive Orders and County ordinances. The Proposed RMPA/Final EIS reflects the widest consensus of the requirements and relationships.

310. Comment: The DEIS also failed to analyze the indirect and cumulative social, cultural and economic effects and the irreversible and irretrievable impacts of each alternative as required in the CEQ 1508.7, 1508 (b) and BLM, NEPA Handbook (Chapter V,(2). Without a clear and complete analysis of all impacts including urban sprawl and other competing uses, livestock producers are unfairly separated from the other and will be forced to bare the burden of cost to restore public land to meet the new Standards.

Response: The Draft RMPA/EIS on page 3-57 recognizes the current effects of urbanization on public land. Although the impacts can be high, the majority of the public land is not near urban areas and a realistic description was provided.

The Standards will establish condition targets for the land. All uses of the public land whether commercial or non-commercial will be managed to be in concert with the standards. For example, Off Highway Vehicle as well as ranching activities will be managed to be consistent with the standards. Activities that are presently managed in a manner consistent with the standard will have very little if any change or adverse impact from establishing the standards. The livestock grazing guidelines will apply only to lands where the standards are not being met due to current livestock grazing practices. Not all allotments will be impacted by the grazing guidelines.

There is not disproportionate harm to ranchers because all uses of the land will have to be consistent with the standards and the only ranchers and other users affected will be those currently conducting activities or practices that are not in concert with achieving the standards. Although the guidelines will not affect all public land ranchers and not all ranchers affected by the guidelines will choose to go out of ranching, there may be ranchers that elect to sell the ranch.

When a ranch is sold, it may mean a permanent change in the lifestyles and traditions of the individual. This will be recognized in Chapter 4 of the Proposed RMPA/Final EIS in a section identified as Irreversible and Irretrievable Consequences.

311. Comment: The Document does not comply with NEPA as the DEIS fails to analyze the indirect and cumulative social, cultural, and economic effects and the irreversible impacts of each alternative.

Response: The direct and indirect impacts are discussed in Chapter 4 under the various alternatives (pages 4-9 through 4-54 of the Draft RMPA/EIS). Cumulative effects common to all alternatives are addressed on pages 4-68 through 4-69 of the Draft RMPA/EIS. An Irreversible and Irretrievable Consequences section has been added in the Proposed RMPA/Final EIS document following the cumulative effects.

312. Comment: The cumulative effects discussion does not adequately address the impacts of implementing the action alternatives on vegetative and soil conditions, water quality, and impacts to wildlife and specialized wildlife habitats. The focus of the analyses emphasizes the grazing industry and the associated economic impacts of adopting standards and guidelines. No single factor has been a greater cause of decline in wildlife populations than loss of habitat. To maintain viable populations of wildlife species, sufficient resources and adequate environmental conditions must provide for reproduction, foraging, resting, cover and dispersal of animals. These attributes of wildlife habitat are not adequately addressed in the document. It is impossible to make meaningful management decisions and adequately evaluate the overall cumulative affects of adopting the standards and guidelines without a picture of the habitat and wildlife that will be impacted.

Response: The various alternatives all provide for improvement of wildlife habitat. A general description of how wildlife and wildlife habitat will be affected is

provided in Chapter 4. A more detailed description with specific details is not possible at this time.

CHAPTER 5 - CONSULTATION AND COORDINATION

Consultation and Coordination

313. Comment: I feel the process was deliberately closed to the public that expressed a negative opinion of grazing... on several occasions I requested my name be placed on the list of interested public and that I receive all relevant information. I only received two documents... and felt I was inhibited from participation.

Response: The Planning/National Environmental Policy Act (NEPA) process is an open public process**.** This particular process began when the Resource Advisory Council (RAC) begin working on New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management in fall 1995. Every RAC meeting had a 2-hour public comment period. While they were working on the RAC Alternative, they invited comments on the subject. Once they had developed draft standard and guidelines, a scoping document with the information was sent out to those on the mailing list. Sixteen scoping meetings were held around the State of New Mexico to get public input on the Draft standards and guidelines. The RAC then made changes to the standards and guidelines. Those standards and guidelines then went into the Draft RMPA/EIS document you received and commented on.

Because of the time frames (the long period of time between scoping and the Draft RMPA/EIS document release) it appears that the public has not had a chance to be involved. The time between scoping and release of the Draft RMPA/EIS is not a public participation period. This time is used by the writers to prepare the document. In this case, the writing team, composed of both Federal and State members, has taken a number of months to prepare the Draft RMPA/EIS. Some people may feel they were excluded because of this long preparation period. However, normal comment periods during scoping and on the Draft RMPA/EIS were provided.

314. Comment: The BLM DEIS failed to consider the Sierra County Environmental Planning and Review Ordinance for assessing economic social, cultural and equity impacts.

Response: Sierra County, along with eight other Counties, is a Cooperating County for this project. The Cooperating Counties provided input into the Draft RMPA/EIS. The National Environmental Policy Act (NEPA) was followed in the preparation of the Draft RMPA/EIS. The Counties have ordinances for preparing environmental documents similar to those required in NEPA.

In the Draft RMPA/EIS, where the State Team's analysis was based on legal theories that were inconsistent with Department of the Interior interpretations of Federal laws, regulations and Executive Orders, the Department of the Interior interpretations were used. In the interest of full disclosure and cooperation, the BLM offered to print any differing views that the State Team and the Cooperating Counties had in an Appendix to the Draft RMPA/EIS (Appendix F), however none were provided to BLM prior to printing the Draft RMPA/EIS.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to joint planning and human dimension issues with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive Orders and County ordinances. The Proposed RMPA/Final EIS reflects the widest consensus of the requirements and relationships.

315. Comment: Not enough scoping "Per NEPA" and Environmental Justice to involve Indian Tribes and other ethnic and social economic groups.

Response: During the scoping period, a scoping meeting was held in Crownpoint, New Mexico to involve the Navajo Tribe. The attendance was about 10 people. During this scoping period, meetings were held with the Eight Northern Indian Pueblos Council;

Upper Rio Puerco Navajo Grazing Permittees, Pueblo of Acoma, and the Pueblo of Laguna. In November BLM had an additional meeting with representatives of the Navajo Nation, BIA-Eastern Navajo Agency, Zia Pueblo, Pueblo of Acoma, and the Pueblo of Laguna to brief them on the project and see how they wanted to be involved. The Navajo Nation had requested cooperating agency status, however after sending them a Draft Memorandum of Understanding and many phone calls, they declined cooperating status. The Navajo Tribe and the Pueblo of Acoma did provide BLM with a statement on their custom and culture. The write-ups on that custom and culture are found in the Draft RMPA/EIS document on pages E-59 through E-63. The Tribal/Pueblos that the Draft RMPA/EIS document was sent to can be found on page 5-5. As far as other ethnic and social groups are concerned, each BLM Field Office informed permittees of scoping meetings. The media was also used to help get the word out.

316. Comment: BLM did not conduct the Consistency Analysis requirements in DEIS per Federal Land Policy and Management Act (43 CFR 1610.3). This law requires the BLM to analyze and identify consistencies and inconsistencies with State environmental and natural resource Laws and County environmental and natural resource Ordinances. The Counties refused to do this requirement, and therefore the BLM simply left this requirement out. The implications to such inaction is that the State/BLM ID Team never was afforded the opportunity to develop a combined document that would show how the healthy rangeland alternatives relate to federal, state, and local laws. This should have been done early in the process to avoid many of the problems that subsequently arose. This consistency review also is an important foundation for moving from the healthy rangelands Standards and Guidelines to actual Area Resource Plan implementation. Without it, the future Area Resource Plans will be missing critical intergovernmental coordination to manage for public lands.

CEQ FMAQ#22 states:

> ***... certain inconsistencies may exist between the proposed federal action and any approved state or local plan or law. The joint document should discuss the extent to which the federal agency would reconcile its proposed action with such plan or law (CEQ 1506. 2)***

Instead of compliance, the BLM unilaterally decided to reject State and County analyses without attempting to reconcile the inconsistencies.

Response: The Consistency Requirements referred to in this comment are per the planning regulations 43 CFR §1610.3-2. Section (a) states:

> "Guidance and resource management plans and amendments to management framework
>
> > plans shall be consistent with officially approved or adopted resource related plans, and the policies and programs contained therein, of other Federal agencies, State and local governments and Indian tribes, so long as the guidance and resource management plans are also consistent with the purposes, policies and programs of Federal laws and regulations applicable to public lands, including Federal and State pollution control laws as implemented by applicable Federal and State air, and water, noise, and other pollution standards or implementation plans."

Section (b) states:

> > "In the absence of officially approved or adopted resource-related plans of other Federal agencies, State and local governments and Indian tribes, guidance and resource management plans shall, to the extent practical, be consistent with officially approved or adopted resource related policies and programs of other Federal agencies, State and local governments and Indian tribes, such consistency will be accomplished so long as the guidance and resource management plans are also consistent with the purposes, policies and programs of Federal laws and regulations applicable to public lands, including, but not limited to, Federal and State pollution control laws as implemented by applicable Federal and State air, and water, noise, and other pollution standards or implementation plans."

Further, section (c) states:

> "State Directors and District Managers shall, to the extent practical, keep apprised of State and local governmental and Indian tribal policies, plans and programs, but they shall not be accountable for ensuring consistency if they have not been notified, in writing, by state and local governments or Indian tribes of an apparent inconsistency." Section (d) states: "Where State and local government policies, plans and programs differ, those of the higher authority will normally be followed."

In the spring of 1997, a Memorandums of Understanding were signed with nine cooperating Counties. In the MOUs the Counties agreed to "Notify the RMPA/EIS team, in writing, of any apparent inconsistencies between it approved or adopted resource -related plans and the policies and procedures contained therein, and the policies, plans and programs of the BLM in accordance with 43 CFR 1610.3-2."

In the spring of 1997, BLM Field Office Managers, or their staff requested a meeting with County Commissioners for those counties potentially affected by a change to existing resource management plans, as listed in Appendix B-1 of the Draft RMPA/EIS. Those commissioners or their representatives were consulted with on plan consistency. No known inconsistencies surfaced.

317. Comment: The DEIS refused to include County Environmental Ordinances for assessing social cultural and economic impacts, as well as County requirements to assess federal proposed actions on civil rights and property rights. The BLM disregarded the County Ordinances that require consideration of the impacts on property rights and civil rights.

CEQ 1506.2 states:

> ***Agencies shall cooperate with State and local agencies to the fullest extent possible to reduce duplication between NEPA and State and local requirements... Where State laws ar local ordinances have environmental impact requirements...federal agencies shall cooperate in fulfilling these requirements as well as those of federal laws so that one document will comply with all applicable laws.***

Cooperating County environmental ordinances provide the vehicle in which county environmental impact reports are to be included in federal EISs. Yet, the BLM's response is 28 pages of rationalizations as to why they, as a federal agency, are exempt from their own federal statutory compliance requirements. The BLM never did give a logical or legal argument why BLM denied the counties from exercising their right in joint EISs per CEQ 1506.2. Federal, State and County laws and regulations were discussed in detail in the County EIR. The BLM suggested to the State Team to place this discussion in the Appendix; the BLM subsequently and unilaterally removed it from the DEIS.

Related to the above, it is inadequate (and odd) that the DEIS is void of any mention of the joint planning process, adding to the confusion of the reader. It should explain the exact nature of this joint effort as well as reasons why it is necessary for State and County participation.

Response: In the Draft RMPA/EIS, where the State Team analysis was based on legal theories that were inconsistent with Department of the Interior interpretations of Federal laws, regulations and Executive Orders, the Department of the Interior interpretations were used. In the interest of full disclosure and cooperation, the BLM offered to print any differing views that the State Team and the Cooperating Counties had in an Appendix to the Draft RMPA/EIS (Appendix F), however none were provided to BLM prior to printing the Draft RMPA/EIS.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to joint planning and human dimension issues with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive

Orders and County ordinances. The Proposed RMPA/Final EIS reflects the widest consensus of the requirements and relationships.

318. Comment: The BLM did not include the State or Cooperating Counties in the ongoing public involvement process as a joint process per MOU agreement, CEQ 1506.2 and County Environmental Ordinances (as well as requests by the State and Cooperating Counties). In addition, the BLM has failed to adequately incorporate the affected tribes and pueblos of New Mexico in the analyses and documentation processes. Presently, the tribes and pueblos have no idea or way of knowing the potential adverse effects on their jurisdictions much less on their communities or individual permittees.

Response: Notice of the public hearings was published in the Draft RMPA/EIS. The State requested to be a panel member at some of the hearings and BLM welcomed their participation. The Cooperating Counties did not request to participate as panel members. Following the agreed to process, all the public comments were sent to the two county representatives for the EIS, these representatives could make and distribute the necessary copies for the Cooperating Counties.

The BLM met with the affected Tribes and Pueblos of New Mexico early in the process to discuss their involvement in the process and explain the action being undertaken. The various affected Tribes and Pueblos of New Mexico decided they did not want to be directly involved, but asked to received copies of the document prior to it being approved for printing and release to the general public. The Navajo Tribe and the Pueblo of Acoma did provide BLM with a statement on their custom and culture. The write-up on that custom and culture are found in the Draft RMPA/EIS document on pages E-59 through E-63. As BLM did with the State Team and Cooperating Counties, copies were sent to the affected Tribes and Pueblos of New Mexico for comments. The affected Tribes and Pueblos of New Mexico were also sent copies of the document once it was published. The Tribes and Pueblos that the Draft RMPA/EIS document was sent to can be found on page 5-5 of the Draft RMPA/EIS. No comments were received from the affected Tribes and Pueblos.

A member of the BIA, Eastern Navajo Agency participated as a member of the State Team in the design of the document.

319. Comment: BLM did not afford the opportunity to the State Team in writing and distribution of the DEIS per State/County/BLM MOUs. Instead, the BLM reversed this agreement and unilaterally wrote the DEIS over protest from the State Team and Cooperating Counties.

Response: The BLM entered into the Memorandums of Understanding (MOUs) in good faith. Time was provided for the State Team to produce a draft Economic and Human Dimension sections of the document. When the State Team produced a draft Economic section, it was commented on by BLM, subsequently the State Team modified the analysis and it went into the Draft RMPA/EIS as written by the State Team. On the other hand, in the development process for the Human Dimension Section, it became apparent the State Team was not willing to modify their product to be consistent with the EIS format or with legal theories and interpretations of the Department of the Interior. The CEQ regulations direct that the responsibility for quality of the EIS resides with the Federal agency, therefore the document published has to be consistent in format and with legal theories and interpretations of the Department of the Interior.

In the Draft RMPA/EIS, where the State Team analysis was based on legal theories that were inconsistent with Department of the Interior interpretations of Federal laws, regulations, and Executive Orders, the Department of the Interior interpretations were used. In the interest of full disclosure and cooperation, the BLM offered to print any differing views that the State Team and the Cooperating Counties had in an Appendix to the Draft RMPA/EIS (Appendix F), however none were provided to BLM prior to printing the Draft RMPA/EIS.

In preparing the Proposed RMPA/Final EIS, BLM once again discussed the requirements of laws and Executive Orders related to joint planning and human dimension issues with the State Team. Not all individuals agreed on the requirements nor the relationship between Federal laws and Executive

Orders and County ordinances. The Proposed RMPA/Final EIS reflects the widest consensus of the requirements and relationships.

320. Comment: The Federal Land Policy and Management Act requires BLM to identify and analyze consistencies and inconsistencies with State and local plans. The DEIS did not sufficiently address this issue so that the public, State and local governments could comprehend the differences. CEQ, 1506.2 (a)(b)(c)(d) mandates compliance with State and local laws and ordinances. Counties are responsible for protecting the human health and safety and ensuring the Human Dimension is adequately addressed.

Response: The BLM offered cooperating agency status to all Counties in the State. Nine Counties accepted the offer to be cooperators. In the spring of 1997, Memorandums of Understanding (MOUs) were signed with nine cooperating Counties. In the MOUs the Counties agreed to: "Notify the RMPA/EIS team, in writing, of any apparent inconsistencies between it approved or adopted resource-related plans and the policies and procedures contained therein, and the policies, plans and programs of the BLM in accordance with 43 CFR 1610.3-2."

At the beginning of the 90-day public comment period one copy of the Draft RMPA/EIS, per County Commission member, was sent to the County Commission address for the 33 Counties in the State. That is, if there were five County Commission members, five copies of the Draft RMPA/EIS were sent to the County Commission address. In addition, two copies of the Draft RMPA/EIS document were sent to the County Manager with a letter asking the County Manager to make one copy available in the County Manager's office should a member of the public request to review it. Neither the County Commissioners or the County Managers for any of New Mexico's 33 Counties, identified any inconsistencies with local plans during the 90- day public comment period. Should inconsistencies be found at a later date, the BLM will discuss resolution of the conflicts with the specific County that identifies the suspected inconsistency.

In the spring of 1997, BLM Field Office Managers, or their staff requested a meeting with County Commissioners for those counties potentially affected by a change to existing resource management plans, as listed in Appendix B-1 of the Draft RMPA/EIS. Those commissioners or their representatives were consulted with on plan consistency. No known inconsistencies surfaced.

321. Comment: The Federal Land Policy and Management Act requires BLM to identify and analyze consistencies and inconsistencies with State and Local plans. Each of the Soil and Water Conservation Districts in New Mexico has annual and long-range plans. These plans have not been considered.

Response: FLPMA Section 202 (c) (9) discusses the consistency issue, it states:

> Section 202 (c) *"In the development and revision of land use plans, the Secretary shall- ...*
>
> *(9) to the extent consistent with the laws governing the administration of the public land, coordinate the land use inventory, planning and management activities of or for such lands with the land use planning and management programs of other Federal departments and agencies and of the States and local governments within which the lands are located, including, but not limited to the statewide outdoor recreation plans developed under that Act of September 3, 1964 (78 Stat.897), as amended, and of or for Indian tribes by, among other things, considering the policies of approved State and tribal resource management programs. In implementing this directive, the Secretary shall, to the extent he finds practical, keep apprised of State, local, and tribal land use plans; assure that consideration is given to those State, local, and tribal plans that are germane in the development of land use plans for public land; assist in resolving, to the extent practical, inconsistencies between Federal and non-Federal Government plans, and shall provide for meaningful public involvement of State and local government officials, both elected and*

appointed, in the development of land use programs, land use regulations, and land use decisions for public land, including early public notice of proposed decisions which may have a significant impact on non-Federal lands. Such officials in each State are authorized to furnish advice to the Secretary with respect to the development and revision of land use plans, land use guidelines, land use rule, and land use regulations for the public land within such State and with respect to such other land use matters as may be referred to them by him. Land use plans of the Secretary under this section shall be consistent with State and Local Plans to the maximum extent he finds consistent with Federal law and purposes of this Act."

The primary points here is found in the first and last sentence of FLPMA Section 202 (c) (9). The first sentence states: " to the extent consistent with the laws governing the administration of the public land". The last sentence states: "...to the maximum extent the finds consistent with Federal law and purposes of this Act".

The BLM sent a copy of the Draft RMPA/EIS to each of the Soil and Water Conservation Districts for their review and comment. The Soil and Water Conservation Districts did not identify any inconsistencies during the 90-day public comment period. The Department of Agriculture made available a portion of the plans for review by BLM. Upon review, no inconsistencies were found. Should inconsistencies be found at a later date, the BLM will discuss resolution of the conflicts with the specific Soil and Water Conservation District.

APPENDICES

<u>Appendix B</u>

322. Comment: On page B-2-9 it does not make sense to me that the RMP decision would be maintained by changing these few words and that it would be the same for each alternative. With each alternative you are increasingly putting more people out of business but you're using the same wording to maintain the RMP decision.

Response: Appendix B-1 shows decisions that will be changed as a result of the plan amendment. Appendix B-2 shows examples of decisions that could be updated using plan maintenance procedures. Plan maintenance is used to add clarifying information without actually changing the decision. Such maintenance actions do not require NEPA and would be completed by the various field offices.

323. Comment: In regard to wildlife, particularly with respect to the Macho WHA, we believe the statement on fencing is too broad, i.e., "The grazing permittee agrees to allow the BLM to modify fences". Modification of the fences should be a condition to the issuance of a permit to graze livestock.

Response: This provision applies to new internal pasture fences.

The Resource Management Plan (RMP) language directs BLM to not issue an authorization to build an internal pasture fence where antelope currently are or in potential habitat unless the fence specifications provide for pronghorn passes or the authorization has provisions for BLM to modify the fences. This provision recognizes that once a fence is constructed, BLM would have authority to modify the fences should an antelope conflict develop.

324. Comment: In the White Sands RMP "The existing RMP decision (L-3) Land Tenure Adjustment is that new rangeland developments, vegetation treatments, and access will not be proposed in land tenure adjustment areas". All proposed standards and guidelines recommend adding, "unless it is determined that the development or treatment is necessary to keep the lands in compliance with the New Mexico Standards for Healthy Range". We do not concur with the proposed change.

Response: The 43 CFR 4180.1(c) states:

The authorized officer shall take appropriate action as soon as practicable but not later than the start of the next

grazing year upon determining that existing grazing management practices or levels of grazing use on public land are significant factors in failing to achieve the standard and conform with the guidelines that are made effective under this section.

The BLM needs to have a full range of opinions so appropriate action can be taken as soon as practicable. This decision would be changed to allow BLM to have more options available. No change to the Draft RMPA/EIS document has been made.

325. Comment: Taos RMP, Wildlife - The objective of the wildlife program is to maintain, improve, and expand wildlife habitat on the public land for both consumptive and non-consumptive use.
The County Standards and Guidelines would modify the first sentence to add 'balanced with the conservation of cultural/historic opportunities for communities and individuals." The RAC and Fallback S & G remain unchanged. The Public land Foundation reviewer does not agree with the change.

Response: The adjustment to the Resource Management Plan would be in keeping with the theme of the County Alternative of "balance", and necessary, if the County Alternative is selected. No change to in the Draft RMPA/EIS document was made based on this comment.

326. Comment: Carlsbad RMP, Livestock Grazing - Livestock management east of the Pecos will be in accordance with East Eddy-Lea MFP grazing decisions, 1.1. Revise 14 existing AMP's to maximize livestock forage on a sustained basis, and to incorporate rest periods to meet the physiological needs of key forage plants.

All proposals recommend a change to the following wording; "Revise 14 existing AMP's so that livestock forage is available on a sustained basis, commensurate with public land health standards, and to incorporate rest periods to meet the physiological needs of key forage plants.

The reviewer comment; The following wording is suggested; 'Revise 14 existing AMP's to assure that grazing management will affect plant development sufficiently to provide livestock forage on a sustained basis.

Response: The BLM Carlsbad Field Office staff was consulted and the recommended change has been made.

327. Comment: Carlsbad RMP, Grazing Systems - Existing RMP Decision 1.3; Develop grazing systems on 42 allotments to maximize livestock forage on a sustained basis, and to incorporate rest periods to meet the physiological needs of key forage plants.

All proposals recommend the wording be changed to; *Develop grazing systems on 42 allotments so that livestock forage is available on a sustained basis, commensurate with public land health standards, and to incorporate rest periods to meet the physiological needs of key forage plants".

The reviewer recommends changing wording to; *Develop grazing systems on 42 allotments designed to affect the objectives of the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management".

Response: The BLM Carlsbad Field Office staff was consulted, and the recommended change has been made.

328. Comment: Roswell RMP, Grazing - The County S&G does not propose changes in the decisions in Appendix B-1-7, 2.) through B-9, 12.) and the changes proposed by RAC and Fallback S&G' are largely cosmetic.

The decision on B-1-10 is to be modified as follows; "Provisions will be made for the planning of revegetation of the land to a level which is suitable to promote diversity and ground cover on land simultaneous with or upon abandonment of a site.

The reviewer's comment; "suitable to promote diversity and ground cover" ? "Simultaneous with ? or upon abandonment'? Gobbledegook!

Response: The intent of this statement as written was to give both BLM and the public land user the flexibility in timing for planning the actions needed to revegetate the disturbed site. This planning could take place while the site is being used prior to abandonment of the site or when the site is abandoned by the user. A change, however, was made to make it read clearer.

329. Comment: Roswell RMP, Special Status Species Habitat Management

Goal: "Provide protection and recovery for all federal and state listed species. Manage occupied and potential habitat for federal and state-listed species on public land to maintain or enhance populations. Manage habitat for federal candidate species to avoid degrading habitat and further listing by either state or federal governments while allowing for mineral production and development, livestock grazing and other uses.

The RAC and Fallback S&G proposals recommend no changes in the above statement.

The County S&G proposal would add: "Affected permittees/lessees will be offered the opportunity to participate in the development of recovery plans and to participate in Section 7 consultations.
The reviewer's comment: This matter is far too complicated to be covered in two sentences. Consider, for example, the following fiascos that have occurred or now exist on public land in New Mexico. The Black (or Mexican) Duck, Ibex, Mouflon, and the Gray Wolf. How is protection and recovery" as stated in the first sentence of the goal, to be interpreted and applied?

Response: The goal statement is a condensation of the BLM Manual regarding the Agency's obligations under the Endangered Species Act (ESA) and BLM policy under the Federal Lands Policy and Management Act (FLPMA) to manage resources in such a manner as to avoid the necessity of listing species under ESA. Measures for the protection and recovery of listed species are usually found in the recovery plan for those species. Additionally, the management actions for protection and recovery of a particular species can be the result of the Section 7 consultation process. The protection and recovery actions vary widely between listed species and between the ecological sites of the public land managed by BLM. Given these variations, specific statements about interpretation and application of the goal statement cannot be made. A list of Special Status Species for the Roswell Field Office can be found in Appendix 11 of the Approved Roswell Resource Management Plan.

330. Comment: White Sands RMP, Rangeland Management from Southern Rio Grande EIS - Objective: To concentrate management and rangeland improvement efforts on those allotments that have a good potential for improvement and resolution of conflicts.

The County S&G proposal states this objective would not have to be maintained. The RAC and Fallback S&G proposals would add, after conflicts, 'striving for healthy, productive and diverse populations of native species as defined by the NRCS Range Site Descriptions and consistent with a multiple use concept.

The Public land Foundation Reviewer does not concur with the County S&G alternative.

Response: The comment was not specific, therefore no direct response is possible.

331. Comment: White Sands RMP, Rangeland Improvements Decision: Livestock water developments will be designed to permit use and escape by wildlife species.

The County S&G proposal would eliminate this decision. The RAC and Fallback S&G proposals would add; "facilities will be located away from riparian wetlands, where possible and desirable to be consistent with multiple use objectives".

The Public land Foundation reviewer recommends changing the RAC and Fallback S&G proposal to read: Facilities will be located away from riparian wetlands.

Response: The County Standards & Guidelines proposal would not eliminate this decision, but the decision would most likely not be changed (from how it reads now for this alternative). The Resource

Advisory Council (RAC) Alternative (Proposed Plan) has been modified to say livestock facilities will be located away from riparian wetlands, where they interfere with riparian function.

Appendix B-2 was included to show how maintenance of existing decisions could be done. It was not intended to show how they actually would be maintained.

332. Comment: White Sands RMP, Land Treatment - Through land treatment projects (chemical, mechanical, and burning) on 241,576 acres, forage production will increase by 20,006 AUM's in the long-term.

The County S&G proposal eliminates this decision. The RAC and Fallback S&G proposals would add: "Seeding, using native species where possible and desirable is planned.

PLF Reviewer believes this recommendation is speculative, redundant, and undesirable in the S&G.

Response: The County Standards & Guidelines proposal would not eliminate this decision, but the decision would most likely not be changed (from how it reads now for this alternative). Appendix B-2 was included to show how maintenance of existing decisions could be done. It was not intended to show how they actually would be maintained.

Appendix C

333. Comment: On page C-2-23 where it refers to endangered and threatened species in Luna County, there are some acronyms that I couldn't find the definition for. They include T, S/A, E, w/PCH. Also under black-footed ferret, I notice that he's listed in nearly every county in the document. I assume that a ferret is probably a water-loving creature. How does it become indigenous to this area? What the documentation is for that conclusion?

Response: Translations of the acronyms appear on page C-2-40 of the Draft RMPA/EIS. This Appendix was also reprinted in the Proposed RMPA/Final EIS document.

Black-footed ferrets are upland animals related to weasels, badgers, and skunks. They are prairie dog predators and occur only in association with prairie dogs. The species has declined nearly to extinction due to the elimination of prairie dogs and the spread of distemper (a disease of dogs) and other diseases. It is likely ferrets only occurred in the northern half of New Mexico, though prairie dogs historically occurred in many areas Statewide. No ferrets are known to occur in New Mexico at this time. There have been no sightings in New Mexico since 1960, according to "Threatened and Endangered Species of New Mexico 1998" published by the US Fish and Wildlife Service.

334. Comment: The Otero County list of Species on page C-2-26 should be limited to include only threatened and endangered species documented to have been found on BLM lands, in Otero County. After all, the human specie, livestock rancher and public land permittee has been so found and documented. He is deserving of equal or better consideration and has been threatened and endangered.

Response: The BLM policy regarding special status species requires that consideration be given to areas where habitat is known or could exist, but in which the species is not currently known to occur. The purpose of this is to support the recovery and delisting of listed species and to provide management opportunities to avoid Federal listing of sensitive species. Prevention of Federal listing retains a greater range and flexibility for public uses while maintaining sensitive species populations.

335. Comment: The list of "Federally Listed, Proposed, and Candidate Species" that is only perfunctorily included as Appendix C-3 actually appears to be longer than the total discussion of these species, their status, their habitat, their needs, and the impacts upon them contained in the entire balance of the Draft Plan/EIS. There is no mapping of their historic range relative to their current distribution; no adequate discussion of the factors limiting or affecting their persistence; no substantive analysis of the relationship between thefactors affecting their persistence and the immediate or cumulative impacts of either the actions being contemplated under this

Draft Plan/EIS or any other actions that might have connected, cumulative, or similar impacts; no specific discussion of any systematic measures that might be applied to mitigate such limiting factors relative to these species; and certainly no scientifically rigorous assessment of the demonstrated efficacy of any such mitigation measures. Furthermore, there are no clear or specific references to sources for such information. For that matter, the Draft Plan/EIS does not even contain a map of the specific lands under your agency's stewardship in the areas under consideration.

This situation clearly does not facilitate the public's ability to understand the scope and impacts of your agency's proposed actions and is clearly unacceptable, particularly in recognition of widespread scientific agreement that livestock grazing is one of the most important factors, if not the most important factor, impacting threatened, endangered, and sensitive species throughout the American West.

Thus, without documenting a valid environmental baseline that enables both the public and the responsible public land managers understand the cumulative impacts of past and proposed actions, which this Draft Plan/EIS fails to do, the rights of the public to cognizant input and comment under NEPA are denied and competent resource management is impossible, particularly with regard to identifying and protecting the habitat, range, and needs of threatened, endangered, and sensitive species.

Response: Due to the large scope of this document, the alternatives are at a broad Statewide level. This precludes site-specific analysis and in depth descriptions of vegetation and related management issues.

336. Comment: I read over the list of proposed and listed endangered species submitted by the USFWS for each county in New Mexico. Specifically in Luna County I would question almost the entire list. As a life long resident of Luna County, I don't believe very many if any of those species have ever existed here. It looks to me like USFWS is just taking a wild guess and are listing everything they can think of without proof of actual existence. In comparing the list from other counties, I found the same species to be listed in multiple counties. If the USFWS is correct then those species that seem to be so widespread across New Mexico wouldn't really be endanger, would they?
Response: The U.S. Fish and Wildlife Service develops County lists based on the historic range of the species, known occurrences, and habitat for the species. A listing of a species on a County list does not necessarily mean that a species is known to currently exist in the County, but that it is within the range of the species and potential habitat for the species to exist within the County. In the absence of verified sightings, the list indicates that the species may occur within the County.

Appendix D

337. Comment: All the economic stuff needs to be completely redone, use actual production and expense figures on it not the projections and estimates. You could have done this over a ten-year period. It will give you an altogether different perspective than what you've got here. You've got the same number of animal unit months on D-12 and D-13. In one of them you have got $15,000 gross income. The other one you've got $10,000 gross income. If you got the same identical animal units, you ought to have the same identical amount of money. I do believe however it is better than what you did in the past, you did not use the economic research figures this time, because they're further off than what these are. You should have used Dr. Fowler's actual budgets and actual stuff that was done. Where the problem is, is Dr. Fowler and Dr. Torrel didn't go back and compare those budgets to what actually went down on the land. Until you can get and use actuals, your tables and charts that you've got in here has got major errors in them. From what you've got in here, there are several things where I know the numbers for a ranch for twenty years, you're so far off its pitiful. Either that or that's a very bad rancher. If he's that bad, he wouldn't be still out there. When you tell me that you're going to decrease my permit by 22 percent and increase my net profit, I think you need to be out there running that thing.

Response: Ranch budget work is constructed from interviews with ranchers. They are not case studies of an individual rancher; the budgets assume a typical working ranch operation. The EIS was a pragmatic approach for the State of New Mexico; it did not go down to the individual ranch level for a site-specific analysis.

338. Comment: The Central Region does not have the same effects to the tax base as it would in counties like Eddy County. The charts on page D-14 are kind of deceiving. For example the extra-small cow/calf ranch is 53 head. The way it is stated it would just cut the percentage on the BLM land. I haven't seen that done yet when an agency makes a decision. If you have intermingled land it takes a reduction on your whole ranch and the way you have it now you may lose three or four head when you take a 20 percent reduction on intermingled lands, you're looking at, 10.5 head. The percentage is deceiving on how big a cut or reduction in your livestock you may have to take.

Response: The other regions for the State of New Mexico have now been analyzed and incorporated into Chapters 3 and 4 and are included as a revised Appendix D in this Proposed RMPA/Final EIS.

The concern that "20 percent cut" on public land may also reduce the level of grazing on intermingled private land is legitimate. However, it does not affect the analysis. The analysis looks at a range of scenarios within the alternatives. Because the areas not meeting the standard have not been identified, an analysis of what will happen is not possible at this time. The reduction of 20 percent on public land was an assumption for one scenario while the assumption of the stocking level after 20 years was consistent for all scenarios.

339. Comment: We would like to ask for an extension of the document until an amendment to the Environmental Impact Statement is published that would include all data for all regions. Whereas the Central Mountain Region data is important, we feel the incorporation of the data from other regions, with higher percentage of federal land, is crucial. Furthermore, we ask to have adequate time to comment on the additional information.

Response: The other regions for the State of New Mexico have now been analyzed and incorporated into Chapters 3 and 4 and are included as a revised Appendix D in this Proposed RMPA/Final EIS.

340. Comment: In several locations this document states it is incomplete, for example on page D-9. How is it possible to read, evaluate, and comment on something that is not there?

Response: Appendix D has now been completed and the data has been summarized in the financial section of the Custom and Culture sections of Chapters 3 and 4. A revised Appendix D is included in this Proposed RMPA/Final EIS.

341. Comment: Much of the data provided that refers to the entire State has been gathered in just one particular area. The land, the people, and the ranching operations throughout this State are very diverse. The only way this document could be accurate is if sound science was used to accumulate the data in all the various regions, various land types, and various operating necessities throughout the State. Using one area for a study and applying the data as representative of the entire State is totally inaccurate.

Response: Appendix D has now been completed and the data has been summarized in the financial section of the Custom and Culture sections of Chapters 3 and 4. A revised Appendix D is included in this Proposed RMPA/Final EIS.

342. Comment: The BLM failed to consider the Human Dimension effects on all the regions of the State of New Mexico (southwest, southeast, or the northwest). By opting to only consider one region (Central Mts.), the DEIS does not adequately show the significant demographic and geographic regional differences (a key component to managing for these different ecosystems). Moreover, by disregarding these significant differences, the report displays a lack of sensitivity not only the different ecosystems, but to the ethnic and cultural differences. Most notably, the document does not address the Native Americans, especially the Navajos in the northwest who have a significant number of BLM grazing permits. In order to analyze and document statewide effects, it is necessary to address each region within

the State to obtain a statewide aggregate. The other three regions should be incorporated before the final EIS is completed for statewide analysis.

Response: The other regions for the State of New Mexico have now been analyzed and incorporated into Chapters 3 and 4 and are included as a revised Appendix D in this Proposed RMPA/Final EIS.

Appendix E

343. Comment: One aspect of this document is grossly inadequate, the human dimension. An extensive amount of additional information is needed in all areas of the State. Some of the information provided is also inaccurate and biased. I would like to refer to the information on pages E-42, E-43, and E-44 regarding Otero County. Although Mr. McDonald is Chairman of the Customs and Culture Committee of the Public Land Use Advisory Council of Otero County, I strongly object to his report in this document and feel it is extremely biased. He is very active in endeavors that do not benefit the BLM land and ranchers of Otero County and I do not feel his report is accurate and does not reflect the true status of customs and culture of Otero County. Further study and consideration absolutely needs to be done.

Response: Early on in the development of the RMPA/EIS, BLM agreed that the Counties would be invited to provide a statement (up to 3 pages in length) on the Custom and Culture of their county. BLM agreed to not edit or change the write-up provided. Otero County provided the information, and it was printed as BLM received it.

GLOSSARY

344. Comment: We feel that there is a need for a good definition of what a riparian area is. We have looked carefully at the riparian functioning condition assessment tool and feel that it is okay. However, the definition of what a riparian area is, is subject to a lot of interpretation and as such, is something that needs to be looked at and probably better addressed.

Response: There are many different definitions for riparian areas, however, many show similar characteristics. The Draft RMPA/EIS glossary definition for "riparian" is the definition in BLM's official riparian policy with a slight re-wording for ease of reading. The following is the actual BLM riparian policy definition:

Riparian Area - an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

345. Comment: The following definition of "Riparian" as stated on page 65 in Glossary states: "an area of land directly influenced by permanent water. It has visible vegetation and physical characteristics reliant upon continuous presence of water. Lakeshores and steambanks are typical riparian areas. Sites such as ephemeral streams or washes that exhibit the presence of vegetation which is dependent on free water in the soil would be considered riparian areas." We would recommend omission of the last sentence in order to eliminate contractions to the rest of the definition. The BLM has recently acquired large tracts along the Rio Bonito Riparian corridor, and we wish to clarify definitions and their impacts before final implementation occurs.

Response: The Draft RMPA/EIS glossary definition for "riparian" is the definition in BLM's official riparian policy with a slight re-wording for ease of reading. The following is the actual BLM riparian policy definition:

Riparian Area - an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

The proposed definition is inappropriate and the official definition is inserted in the glossary.

APPENDIX A
FUNDAMENTALS OF RANGELAND HEALTH AND STANDARDS AND GUIDELINES FOR GRAZING ADMINISTRATION (43 CFR 4180)

§ 4180.1 Fundamentals of rangeland health.

The authorized officer shall take appropriate action under subparts 4110, 4120, 4130, and 4160 of this part as soon as practicable but not later than the start of the next grazing year upon determining that existing grazing management needs to be modified to ensure that the following conditions exist.

(a) Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.

(b) Ecological processes, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.

(c) Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established BLM management objectives such as meeting wildlife needs.

(d) Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Category 1 and 2 Federal candidate and other special status species.

§ 4180.2 Standards and guidelines for grazing administration.

(a) The Bureau of Land Management State Director, in consultation with the affected resource advisory councils where they exist, will identify the geographical area for which standards and guidelines are developed. Standards and guidelines will be developed for an entire state, or an area encompassing portions of more than 1 state, unless the Bureau of Land Management State Director, in consultation with the resource advisory councils, determine that the characteristics of and area are unique, and the rangelands within the area could not be adequately protected using standards and guidelines developed on a broader geographical scale.

(b) The Bureau of Land Management State Director, in consultation with affected Bureau of Land Management resource advisory councils, shall develop and amend State or regional standards and guidelines. The Bureau of Land Management State Director will also coordinate with Indian tribes, other State and Federal land management agencies responsible for the management of lands and resources with in the region or area under consideration, and the public in the development of State or regional standards and guidelines. Standards and guidelines developed by the Bureau of Land Management State Director must provide for conformance with the fundamentals of § 4180.1. State or regional standards or guidelines developed by the Bureau of Land Management State Director may not be implemented prior to their approval by the Secretary. Standards and guidelines made effective under paragraph (f) of this section may be modified by the Bureau of Land Management State Director, with approval of the Secretary, to address local ecosystems and management practices.

(c) The authorized officer shall take appropriate action as soon as practicable but not later than the start of the next grazing year upon determining that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform with the guidelines that are made effective under this section. Appropriate actions means implementing actions pursuant to subparts 4110, 4120, 4130, and 4160 of this part that will result in significant progress toward fulfillment of the standards and significant progress toward conformance with the guidelines. Practices and activities subject to standards and guidelines include the development of grazing-related portions of activity plans, establishment of terms and conditions of permits, leases and other grazing authorizations, and range improvement activities such as vegetation manipulation, fence construction and development of water.

(d) At a minimum. State or regional standards developed under paragraphs (a) and (b) of this section must address the following:

(1) Watershed function;

(2) Nutrient cycling and energy flow;

(3) Water quality;

(4) Habitat for endangered, threatened, proposed, Candidate 1 or 2, or special status species; and

(5) Habitat quality for native plant and animal populations and communities.

(e) At a minimum, State or regional guidelines developed under paragraphs (a) and (b) of this section must address the following:

(1) Maintaining or promoting adequate amounts of vegetative ground cover, including standing plant material and litter, to support infiltration, maintain soil moisture storage, and stabilize soils;

(2) Maintaining or promoting subsurface soil conditions that support permeability rates appropriate to climate and soils;

(3) Maintaining, improving or restoring riparian-wetland functions including energy dissipation, sediment capture, groundwater recharge, and stream bank stability;

(4) Maintaining, or promoting stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform;

(5) Maintaining or promoting the appropriate kinds and amounts of soil organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow;

(6) Promoting the opportunity for seedling establishment of appropriate plant species when climatic conditions and space allow;

(7) Maintaining, restoring or enhancing water quality to meet management objectives, such as meeting wildlife needs;

(8) Restoring, maintaining or enhancing habitats to assist in the recovery of Federal threatened and endangered species;

(9) Restoring, maintaining or enhancing habitats of Federal Proposed, Category 1 and 2 Federal candidate, and other special status species to promote their conservation;

(10) Maintaining or promoting the physical and biological conditions to sustain native populations and communities;

(11) Emphasizing native species in the support of ecological function; and

(12) Incorporating the use of non-native plant species only in those situations in which native species are not available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health;

(f) In the event that State or regional standards and guidelines are not completed and in effect by February 12, 1997, and until such time as State or regional standards and guidelines are developed and in effect, the following standards provided in paragraph (f)(1) of this section and guidelines provided in paragraph (f)(2) of this section shall apply and will be implemented in accordance with paragraph (c) of this section.

(1) Fallback standards.

(i) Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and landform.

(ii) Riparian-wetland areas are in properly functioning condition.

(iii) Stream channel morphology (including but not limited to gradient, width/depth ratio, channel roughness and sinuosity) and functions are appropriate for climate and landform.

(iv) Healthy, productive and diverse populations of native species exist and are maintained.

(2) Fallback guidelines.

(i) Management practices maintain or promote adequate amounts of ground cover to support infiltration, maintain soil moisture storage, and stabilize soils;

(ii) Management practices maintain or promote soil conditions that support permeability rates that are appropriate to climate and soils;

(iii) Management practices maintain or promote sufficient residual vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability.

(iv) Management practices maintain or promote stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions that are appropriate to climate and landform;

(v) Management practices maintain or promote the appropriate kinds and amounts of soil organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow;

(vi) Management practices maintain or promote the physical and biological conditions necessary to sustain native populations and communities;

(vii) Desired species are being allowed to complete seed dissemination in 1 out of every 3 years (Management actions will promote the opportunity for seedling establishment when climatic conditions and space allow.);

(viii) Conservation of Federal threatened or endangered, Proposed, Category 1 and 2 candidate, and other special status species is promoted by the restoration and maintenance of their habitats;

(ix) Native species are emphasized in the support of ecological function;

(x) Non-native plant species are used only in those situations in which native species are not readily available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health;

(xi) Periods of rest from disturbance or livestock use during times of critical plant growth or regrowth are provided when needed to achieve healthy, properly functioning conditions (The timing and duration of use periods shall be determined by the authorized officer.);

(xii) Continuous, season-long livestock use is allowed to occur only when it has been demonstrated to be consistent with achieving healthy, properly functioning ecosystems;

(xiii) Facilities are located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland function;

(xiv) The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites; and

(xv) Grazing on designated ephemeral (annual and perennial) rangeland is allowed to occur only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species are avoided.

This Table contains a list of decisions from BLM's Resource Management Plans in New Mexico that relate to the County, Proposed and Fallback standards and guidelines in Chapter 2. The table include determinations on what happens to existing decisions in the RMPs if the standards and guidelines are adopted under the various alternatives. Only those decisions which would be modified or replaced are shown. RMPs needing modifications under one or more of the alternatives include: Rio Puerco, Farmington, White Sands, Taos, Carlsbad, and Roswell. RMPs not needing to be modified include Socorro and Mimbres. Most decisions from the RMPs would not be modified or changed as those existing decisions conform with the standards and guidelines. Decisions not modified can be reviewed in each Resource Area or District Office, they remain part of the RMP and are used with the standards and guidelines.

RIO PUERCO RMP

EXISTING RMP DECISION/OBJECTIVE	**How S&Gs Will Affect Decision**		
	County S&G	**RAC S&G**	**Fallback S&G**
ACCESS/TRANSPORTATION/ORV **Decision**: Permitted competitive events such as the "Oh My God 100" will continue to be authorized as not limited to existing roads and trails. p. 81 **Objective**: To provide areas for motor bikes to hold competitive events on a limited basis.	Modify both the decision and objective. They would read: Decision: *Permitted competitive events such as the "Oh My God 100" will be evaluated on a case by case basis and limited to existing roads and trails.* Objective: *To evaluate areas for motor bikes to hold competitive events on a case by case basis.*	Decision and objective would be replaced as shown for the County alternative.	Decision and objective would be replaced as shown for the County alternative.
Decision: Another area has been designated for competitive dune buggy events using existing routes (Map 16). p. 81 **Objective**: To provide a designated area for dune buggy competitive events.	Decision and/or objective would be modified to read: Decision: *Competitive dune buggy events will be evaluated on a case by case basis and limited to existing roads and trails.* Objective: *To evaluate dune buggy competitive events on a case by case basis.*	Decision and/or objective would be modified with the same wording shown for the County alternative.	Decision and/or objective would be modified with the same wording shown for the County alternative.

WHITE SANDS RMP - LAS CRUCES FIELD OFFICE

EXISTING RMP DECISION	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
White Sands RMP - 1986 Lands Decision L-3 Land Tenure Adjustment (...New rangeland developments, vegetation treatments, and access will not be proposed in land tenure adjustment areas.)	Decision would be modified by adding the following to the decision: areas)*, unless it is determined that the development or treatment is necessary to keep the lands in compliance with the New Mexico Standards for Healthy Range.*	Decision would be modified with the same wording shown for the County alternative.	Decision would be modified with the same wording shown for the County alternative.

FARMINGTON RMP

EXISTING RMP DECISION	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
Issue #6 - Vegetative Uses - Set the correct levels of vegetative use based on a 5 year monitoring plan. Re-examine the Grazing Memorandum of Understanding between the BLM, BIA, and Navajo Nation to expand the agreement for allotments in the exchange zone and cancel the agreement for allotments in the retention and acquisition zones and in allotments wholly or partially within designated wilderness. (pg 2-3)	Decision would be modified by changing the first sentence to read as follows: Set the levels of vegetative use *to achieve resource function commensurate with the Public Land health standards.*	Decision would be modified with the same wording shown for the County S&G alternative.	Decision would be modified with the same wording shown for the County S&G alternative.

TAOS RMP

EXISTING RMP DECISIONS	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
Wildlife The objective of the wildlife program is to maintain, improve, and expand wildlife habitat on the public lands for both consumptive and non-consumptive use. This program is also responsible for the protection and recovery of federal and state listed and candidate threatened and endangered plant and animal species. National legislation has directed the BLM to improve wildlife habitat. There are increasing demands on the wildlife resource for both consumptive and non-consumptive uses, as well as increasing competition with other resource uses, such as recreation, grazing, and fuelwood harvesting. Technical publications, studies, reports, and inventory data are used to update the Taos Resource Area with respect to management objectives and techniques.	The first sentence of the Decision would be modified to read: *The objective of the wildlife program is to maintain, improve, and expand wildlife habitat on the public lands for both consumptive and non-consumptive use, balanced with the conservation of cultural/historic opportunities for communities and individuals.* This program is also responsible for.....	Decision would not be modified under this alternative.	Decision would not be modified under this alternative.

EXISTING RMP DECISIONS	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
Transportation 1. OR use on all public lands retained in Federal ownership are limited to existing roads and trails. There are two area which have special designations for OR use; Rio Chama is closed to OR use; and Fun Valley is open to OR use with Special Stipulations for Cultural and Paleontological values.	Decision would not be modified under this alternative.	Decision would not be modified under this alternative.	Decision would be modified to read: *OR use on all public lands retained in Federal ownership are limited to existing roads and trails. There are two areas which have special designations for OR use; Rio Chama is closed to OR use; and Fun Valley is open to OR use with Special Stipulations for cultural, Paleontological and vegetative resource values.*
Fun Valley Special Management Area Primary use of the Fun Valley SMA will be off-road vehicle use. Individual OR use and organized race events will be directed to this area. As a result, special consideration will be given to the paleontological and cultural resources in the area. Secondary uses will be grazing and mineral material sales.	Decision would not be modified under this alternative.	The first three sentences of the Decision would be modified to read: *One of the uses in the Fun Valley SMA will be off-road vehicle use. Individual OR use and organized race events will be directed to this area. As a result, special consideration will be given to the paleontological, cultural and vegetative resources in the area.* Secondary uses will be.....	Decision would be modified with the same wording shown for the RAC alternative.

CARLSBAD RMP

EXISTING RMP DECISION	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
Vegetation (p. 4 RMP ROD) *Vegetation treatments will be applied to approximately 62,000 acres, or 6% of the total federal acreage, west of the Pecos River. Approximately 95% will be treated with prescribed fire, while the remainder will be treated chemically.	Decision would be replaced with the following wording: *Vegetation treatments may be applied as needed to achieve health rangeland standards.*	Decision would be modified with the same wording shown for the County alternative.	Decision would be modified with the same wording shown for the County alternative.
Livestock Grazing **Livestock management east of the Pecos will be in accordance with East Eddy-Lea MFP grazing decisions (p.1 Carlsbad RMP)** 1.1 Revise 14 existing AMP's to maximize livestock forage on a sustained basis, and to incorporate rest periods to meet the physiological needs of key forage plants.	Decision would be replaced with the following wording: *Revise 14 existing AMPs so that livestock forage is available on a sustained basis, commensurate with public land health standards, and to incorporate rest periods to meet the physiological needs of key forage plants.*	Decision would be modified with the same wording shown for the County alternative.	Decision would be modified with the same wording shown for the County alternative.
1.3 Develop grazing systems on 42 allotments to maximize livestock forage on a sustained basis, and to incorporate rest periods to meet the physiological needs of key forage plants.	Decision would be replaced with the following wording: *Develop grazing systems on 42 allotments designed to affect the objectives of the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.*	Decision would be modified with the same wording shown for the County alternative.	Decision would be modified with the same wording shown for the County alternative.

ROSWELL RMP

EXISTING RMP DECISION - Roswell Resource Management Plan	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
Appendix 19. Decisions from Previous Planning Documents 2.) All allotments will be classified as suitable for yearlong grazing unless future activity plans specify a need to change the season of use. (West Roswell MFPA/EIS Record of Decision)	Decision would not be modified under this alternative.	Decision would be modified to read: *All allotments will be classified as suitable for yearlong grazing unless resource conditions reflect a need to change the season of use necessary to meet the standards and guidelines.*	Decision would be modified with the same wording shown for the RAC alternative.
Appendix 19. Decisions from Previous Planning Documents 3.) Develop Allotment Management Plans (AMPs) for allotments where intensive management appears feasible. Grazing schedules incorporated in AMP's should be designed to achieve upward trend and fair or better condition in 6 TO 8 years and maximum sustained carrying capacity in 15 to 20 years. (East Chaves Framework Plan, initially)	Decision would not be modified under this alternative.	Decision would be modified to read: *Develop Allotment Management Plans (AMPs) as consistent with the grazing guidelines, to implement management actions needed to move toward achieving the standards and to respond to requests for plan development by individual permittees/lessees.*	Decision would be modified with the same wording shown for the RAC alternative.
Appendix 19. Decisions from Previous Planning Documents 7.) Documented grazing programs and/or cooperative management plans (CMPs') will be implemented on "I" category allotments. Specific programs and plan will be applied to individual allotments on a priority basis beginning with those allotments with the highest potential for improvement. (West Roswell MFPA/EIS Record of Decision)	Decision would not be modified under this alternative.	Decision would be modified to read: *Documented grazing programs and/or management plans will be implemented on allotments consistent with the grazing guidelines and to respond to requests by permittees/lessee for plan development and implementation.*	Decision would be modified with the same wording shown for the RAC alternative.

EXISTING RMP DECISION - Roswell Resource Management Plan	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
Appendix 19. Decisions from Previous Planning Documents 8.) Revise AMP's that have been implemented and are not showing improvement. Revise or develop grazing schedules designed to achieve an improving trend and fair or better condition in 6 to 8 years and maximum sustained carrying capacity in 15 to 20 years.	Decision would not be modified under this alternative.	Decision would be modified to read: *Revise AMP's that have been implemented and are not consistent with the Standards & Guidelines.*	Decision would be modified with the same wording shown for the RAC alternative.
Appendix 19. Decisions from Previous Planning Documents 9.) The following allotments do not require prescribed grazing management by BLM. Proper grazing use through the efforts of the rancher and the Soil Conservation Service should be encouraged for these allotments. "C" CATEGORY ALLOTMENTS 5001, 5002, 5003, 5004, 5006, 5008, 5009, 5011, 5013, 5014, 5015, 5016, 5017, 5022, 5023, 5026, 5027, 5030, 5031, 5033, 5035, 5039 (SHERMAN CATTLE), 5039 (RED TANK CORP.), 5042, 5045, 5052, 5054, 5056, 5059, 5060, 5061, 5064, 5070, 5071, 5081, 5093 (East Chaves Management Framework Plan, initially).	Decision would not be modified under this alternative.	Decision would be dropped under this alternative.	Decision would be dropped under this alternative.

EXISTING RMP DECISION - Roswell Resource Management Plan	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
Appendix 19. Decisions from Previous Planning Documents 12.) Implementation of rangeland improvement projects will be in accordance with the Final Rangeland Improvement Policy (Washington Office Instruction Memorandum 83-27). In allocating rangeland improvement funds, BLM procedures for evaluating, ranking, and budgeting range improvements will be applied. Appropriated funds available for investment in rangeland improvements will be allocated as follows: a. First, to the maintenance of improvements that continue to serve a valid purpose or objective and for which the BLM has maintenance responsibility. b. Second, for the design, construction and maintenance of new rangeland improvements that conform with a specific development plan for the area. Such plans may be Cooperative Management Plans (CMPs) -now Allotment Management Plans (AMPs), Habitat Management Plans (HMPs), Herd Management Plans (HMAPs) or other plans providing a rational decision-making framework for meeting multiple-use management objectives. c. Additional range improvements will be evaluated and implemented when the need is identified. (West Roswell MFPA/EIS Record of Decision)	Decision would be modified to read: *Implementation of rangeland improvement projects and treatments will be consistent with current laws, regulations, policies, land use plans and budgetary priorities. Rangeland improvements and treatments will be designed and implemented in a manner that is consistent and will promote rangeland health and achieve the standards and guidelines.*	Decision would be modified with the same wording shown for the County alternative.	Decision would be modified with the same wording shown for the County alternative.

EXISTING RMP DECISION - Roswell Resource Management Plan	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
Appendix 19. Decisions from Previous Planning Documents 15.) Provisions should be made for planning revegetation of land to a level which is suitable for livestock production on land simultaneous with or upon abandonment of a site. Mining areas, oil and gas roads and pads, mineral sites should be protected either through stipulations or by Bureau action prior to disturbance. (East Chaves Management Framework Plan)	Decision would not be modified under this alternative.	Decision would be modified to read: *The land will be revegetated to a level which is suitable to promote diversity and ground cover on land simultaneous with or upon abandonment of a site. Mining areas, oil and gas roads and pads, mineral sites will be protected either through stipulations or by Bureau action prior to disturbance.*	Decision would be modified with the same wording shown for the RAC alternative.

EXISTING RMP DECISION - Roswell Resource Management Plan	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
Chapter 2 PRMP/EIS, pg. 2-42 - 43 LIVESTOCK GRAZING MANAGEMENT			
Goal: Provide effective and efficient management of allotments to maintain, improve, and monitor range conditions.	Goal would not be modified under this alternative.	Goal would not be modified under this alternative.	Goal would not be modified under this alternative.
Allotment categorization and initial grazing use allocations made in the East Roswell Grazing Environmental Impact Statement (1979) and the Roswell Resource Area Management Framework Plan Amendment/Environmental Impact Statement (1984) would be used as the basis for continued livestock grazing. Changes in use allocations would continue to be made on the basis of monitoring data. Livestock grazing management decisions from previous land use plans, and the disposition of those decisions, are discussed in Appendix 19.	Proposed wording in the PRMP/EIS would not be modified under this alternative.	Proposed wording in the PRMP/EIS would be modified under this alternative to read: *Livestock grazing management decisions made in the East Roswell Grazing Environmental Impact Statement (1979) and the Roswell Resource Area Management Framework Plan Amendment/Environmental Impact Statement (1984) would be used as the basis for continued livestock grazing. Changes in use allocations would continue to be made on the basis of monitoring data. These decisions are discussed in Appendix 19.*	Proposed wording in the PRMP/EIS would be modified with the same wording shown for the RAC alternative.
Within the Macho WHA, new internal pasture fences constructed of netwire would not be allowed across public lands on allotments that currently support pronghorn or on allotments in the WHA with the potential to provide suitable pronghorn habitat. Future changes in class of livestock would necessitate reconsidering the fencing standard to be used in each situation. Exceptions to this requirement are: - The grazing permittee agrees to the construction of pronghorn passes on proposed interior fences; - The grazing pemittee agrees to allow the BLM to modify fences; - Netwire would be used in the construction of small traps or holding pens; - Netwire would be used in security fences around facilities such as microwave sites.	Proposed wording in the PRMP/EIS would be modified under this alternative to read: *Within portions of the Macho WHA meeting the antelope suitability criteria, new internal pasture fences constructed of netwire would not be allowed accross public lands on allotments that currently support pronghorn or on allotments in the WHA with the potential to provide suitable pronghorn habitat. Exceptions to this requirement are:* *- The grazing permittee agrees to the construction of pronghron passes on proposed interior fences;* *- The grazing pemittee agrees to allow the BLM to modify fences;* *-Netwire would be used in the*	Proposed wording in the PRMP/EIS would be modified under this alternative with the same wording shown for the County alternative.	Proposed wording in the PRMP/EIS would be modified under this alternative with the same wording shown for the County alternative.

EXISTING RMP DECISION - Roswell Resource Management Plan	How S&Gs Will Affect Decision		
	County S&G	RAC S&G	Fallback S&G
	- The grazing permittee agrees to allow the BLM to modify fences; - Netwire would be used in the construction of small traps or holding pens; *- Netwire would be used in security fences around facilities such as microwave sites.* *Future changes in class of livestock would necessitate reconsidering the fencing standard to be used in each situation.*		
Chapter 2 PRMP/EIS, pg. 2-69 Special Status Species Habitat Management Goal: Provide protection and recovery for all federal and state listed species. Manage occupied and potential habitat for federal and state-listed species on public land to maintain or enhance populations. Manage habitat for federal candidate species to avoid degrading habitat and further listing by either state or federal governments while allowing for mineral production and development, livestock grazing and other uses. Refer to Appendix 17 for listing of Special Status Species occurring or potentially occurring in the Roswell Resource Area.	*Goal statement would not be modified under this alternative.* *The following wording would be added as a paragraph following the paragraph after the goal statement. It would read: Affected permittees/lessees will be offered the opportunity to participate in the development of recovery plans and to participate in Section 7 consultations.*	*Goal statement would not be modified under this alternative.* *Wording would not be modified under this alternative.*	*Goal statement would not be modified under this alternative.* *Wording would not be modified under this alternative.*

This Table contains a few decisions from BLM's Resource Management Plans in New Mexico not needing to be amended but related to the Proposed, County and Fallback standards and guidelines in chapter 2 possibly needing maintenance. Plan Maintenance is used to keep the data base and planning current. Plan Maintenance is used to clarify a decision without actually changing the overall decision. No formal notice or public involvement required in the maintenance process. The tables shows how RMP decisions could be maintained as provided for in 1610.5-4 of the planning regulations. The decisions would not need to be amended but could be maintained to include language based on the approval of standards and guidelines to be included with all existing decisions. The decisions listed here is only a sampling of decisions that could be maintained for this action once the planning is completed. Decisions shown for maintenance include a sample from Rio Puerco, Farmington, White Sands, and Carlsbad RMPs. Decisions from Socorro, Taos, Roswell and Mimbres RMPs could also be maintained as provided for in 1610.5-4 for the planning regulations but no samples of their decisions were included here. Existing RMP decisions can be reviewed at the FOs where the RMP was prepared. It is not known how many decisions from the RMPs would have maintenance done on them following a decision of the standards and guidelines to be used in New Mexico. The standards and guidelines approved would be used in conjunction with existing RMP decisions as well as those amended through this RMPA/EIS process.

RIO PUERCO RMP

EXISTING RMP DECISION/OBJECTIVE	**. . . . . How S&Gs Will Affect Decision**		
	County S&G	**Proposed S&G**	**Fallback S&G**
Decision: Specific management prescriptions to resolve the identified resource conflicts will continue to be developed in Allotment Management Plans (AMPs). They will be prepared in consultation, cooperation and coordination with affected permittees and/or affected parties (PRIA Section 8). p. 46 **Objective**: To ensure that all resource needs are considered and how livestock grazing will be conducted.	Decision and/or objective could be maintained by adding: *commensurate with Public Land health standards and guidelines.*	Decision and/or objective could be maintained with the same wording shown for the County alternative.	Decision and/or objective could be maintained with the same wording shown for the County alternative.
Decision: Future rangeland improvements will be designed and constructed to meet the management objectives in the RMP. The extent, location and timing would depend on improvements needed for each allotment, allottee contributions, BLM funding, and other resource uses. All improvements will be subjected to economic analysis. This analysis will determine priority ranking. p. 49-51 **Objective**: Range improvement funds will be used in the highest priority allotments.	Decision and/or objective could be maintained by adding: *commensurate with Public Land health standards and guidelines.*	Decision and/or objective could be maintained with the same wording shown for the County alternative.	Decision and/or objective could be maintained with the same wording shown for the County alternative.

Decision: Animal damage control activities on public lands will be guided by Department of the Interior (DOI) policy. p. 54 **Objective**: Implement the current BLM-USDA animal damage control master memorandum of understanding.	Decision and/or objective could be maintained by adding: *commensurate with Public Land health standards and guidelines.*	Decision and/or objective could be maintained with the same wording shown for the County alternative.	Decision and/or objective could be maintained with the same wording shown for the County alternative.
Decision: Develop a comprehensive watershed plans by 1990 for the Governor, Trechado, Monte Seco, and San Jose watersheds as specified in the Divide MFP. p. 41 **Objective**: To reduce erosion and improve water quality. 1 - Commensurate with Public Land health standards and guidelines.	Decision and/or objective could be maintained by adding: *commensurate with Public Land health standards and guidelines.*	Decision and/or objective could be maintained with the same wording shown for the County alternative.	Decision and/or objective could be maintained with the same wording shown for the County alternative.
Decision: Public lands will be designated as "open", "limited", or "closed" for ORV use. p. 86 **Objective**: To determine which areas are best suited for ORV use in the RPRA based on environmental factors such as soil and vegetation.	Decision and/or objective could be maintained by adding: *commensurate with Public Land health standards and guidelines.*	Decision and/or objective could be maintained with the same wording shown for the County alternative.	Decision and/or objective could be maintained with the same wording shown for the County alternative.
Decision: The RPRA will prepare a Transportation Management Plan during FY 87. p. 115 **Objective**: A comprehensive road inventory is needed to identify type, maintenance needs, and if we plan to abandon road or upgrade it.	Decision and/or objective could be maintained by adding: *commensurate with Public Land health standards and guidelines.*	Decision and/or objective could be maintained with the same wording shown for the County alternative.	Decision and/or objective could be maintained with the same wording shown for the County alternative.

WHITE SANDS RMP

EXISTING RMP DECISION	HOW S&Gs WILL AFFECT DECISION		
	County S&G	Proposed S&G	Fallback S&G
Southern Rio Grande Grazing EIS - 1982 Rangeland Management - From Southern Rio Grande EIS Objective: To concentrate management and rangeland improvement efforts on those allotments that have a good potential for improvement and resolution of conflicts.	Objective would not need to be maintained under this alternative.	Objective could be maintained by adding the following at the end of the objective: conflict***, striving for healthy, productive and diverse populations of native species as defined by the NRCS Range Site Descriptions and consistent with a multiple use concept.***	Objective could be maintained by adding the following at the end of the objective: conflict***, striving for healthy, productive and diverse populations of native species as defined by the NRCS Range Site Descriptions and consistent with a multiple use concept.***

EXISTING RMP DECISION	HOW S&Gs WILL AFFECT DECISION		
	County S&G	Proposed S&G	Fallback S&G
White Sands RMP - 1986 Rangeland Management - WSRA (Except McGregor Range) Objectives: 1. A threatened, endangered, State-listed, or sensitive species clearance will be conducted by BLM prior to the beginning of any project. If a "may affect" determination is made, consultation will be undertaken with the agency (Fish and Wildlife Service, New Mexico Department of Game and Fish, or the New Mexico State Heritage Program) listing the species which may be affected. The results of the consultation will determine the course of action necessary to avoid adverse effects on listed species (Endangered Species Act and BLM Manual 6840).	Objective could be maintained by adding after the end if the second sentence following...the species which may be affected. ***In addition, consultation with the affected permittee will take place pursuant to New Mexico's Wildlife Conservation Act.***	Objective would not need to be maintained under this alternative.	Objective would not need to be maintained under this alternative.
2. Rangeland improvements will be designed to provide for wildlife needs. Livestock water developments will be designed to permit use and escape by wildlife species. Where BLM controls the water source, water will be available yearlong.	Objective would not need to be maintained under this alternative.	Objective 2 could be maintained by adding after the end of the third sentence the following...water will be available yearlong. ***New and existing facilities will be modified or located away from riparian-wetlands, where*** *they conflict with achieving desired future riparian condition*	Objective 2 could be maintained by adding after the end of the third sentence the following...water will be available yearlong. ***New and existing facilities will be modified or located away from riparian-wetlands, where*** *they conflict with achieving desired future riparian condition.*
Decisions: RM-3 Rangeland Monitoring Program "...The monitoring studies would provide information to establish the proper stocking rates, grazing treatments, rangeland development developments, and vegetation treatments necessary to properly manage the renewable resource of the Planning area."	Decision would not need to be maintained under this alternative.	Decision could be maintained by adding***...to properly manage the renewable resources of the Planning Area, striving for healthy, productive and diverse populations of native species as defined by NRCS Range Site Descriptions and consistent with the multiple use concept.***	Decision could be maintained by adding***...to properly manage the renewable resources of the Planning Area, striving for healthy, productive and diverse populations of native species as defined by NRCS Range Site Descriptions and consistent with the multiple use concept.***

EXISTING RMP DECISION	HOW S&Gs WILL AFFECT DECISION		
	County S&G	Proposed S&G	Fallback S&G
RM-5 Through land treatment projects (chemical, mechanical, and burning) on 241,576 acres, forage production will increase by 20,006 AUMs in the long-term. Seeding is planned for 1,597 acres. RM-6 It is estimated that the following rangeland developments will be constructed in the short-term: 142.9 miles of pipeline, 124.25 miles of fence, 34 wells with pumps or windmills, 36 storage tanks (20,000 gallons each), 148 drinking troughs, 16 dirt tanks, 74 erosion control dikes, and 1 catchment.	Decision would not need to be maintained under this alternative. Decision would not need to be maintained under this alternative.	Decision could be maintained by adding the following sentence. ***Seeding, using native species where possible and desirable is planned.*** Decision could be maintained by adding the following sentence. ***New and existing facilities will be modified or located away from riparian-wetlands, where*** *they conflict with achieving desired future riparian condition*	Decision could be maintained by adding the following sentence. ***Seeding, using native species where possible and desirable is planned.*** Decision could be maintained by adding the following sentence. ***New and existing facilities will be modified or located away from riparian-wetlands, where*** *they conflict with achieving desired future riparian condition*
White Sands RMP <u>Rangeland Management - McGregor Range</u> Mc/G-7 19 wells, 77 water troughs, 39 water storage tanks, and 5 dirt tanks will be constructed.	Decision would not need to be maintained under this alternative.	Decision could be maintained by adding the following sentence. ***The objective is for Riparian-Wetland areas to be in properly functioning condition as defined in BLM Tech Reference 1737-9 1993.***	Decision could be maintained by adding the following sentence. ***The objective is for Riparian-Wetland areas to be in properly functioning condition as defined in BLM Tech Reference 1737-9 1993.***
White Sands RMP - 1986 <u>Soils and Water Resources</u> Objectives: 2. The policy given in Manual 6740-Wetland-Riparian Area Protection and Management will provide the basis for management of all riparian areas.	Objective would not need to be maintained under this alternative.	Objective could be maintained by adding the following: ***The objective is for Riparian-Wetland areas to be in properly functioning condition as defined in BLM Tech Reference 1737-9 1993.***	Objective could be maintained by adding the following:***The objective is for Riparian-Wetland areas to be in properly functioning condition as defined in BLM Tech Reference 1737-9 1993.***

EXISTING RMP DECISION	HOW S&Gs WILL AFFECT DECISION		
	County S&G	Proposed S&G	Fallback S&G
White Sands RMP Amendment for McGregor Range - 1990 Livestock Grazing Objective: The Objectives of the grazing management program on McGregor Range are to maintain the present rangeland condition which is the desired plant community and maintain the trend on acres having good to excellent ecological condition and stable to improving trend, and stabilize or improve the trend in other areas; and increase the forage production from 49,877 animal unit months (AUMs) to 60,000 AUMs for utilization by cattle, deer, and pronghorn antelope.	Objective would not need to be maintained under this alternative.	Objective could be maintained by adding the following to the middle of the objective ...improve the trend in other areas ***with native species as the primary component of the desired plant community***; and increase the forage production...	Objective could be maintained by adding the following to the middle of the objective ...improve the trend in other areas ***with native species as the primary component of the desired plant community***; and increase the forage production...
MG-7 19 wells, 77 water troughs, 39 water storage tanks, and 5 dirt tanks will be constructed.	Decision would not need to be maintained under this alternative.	Decision could be maintained by adding the following: ***The objective is for Riparian-Wetland areas to be in properly functioning condition as defined in BLM Tech Reference 1737-9 1993.***	Decision could be maintained by adding the following: ***The objective is for Riparian-Wetland areas to be in properly functioning condition as defined in BLM Tech Reference 1737-9 1993.***
MG-8 3 corrals will be constructed.	Decision would not need to be maintained under this alternative.	Decision could be maintained by adding the following: ***The objective is for Riparian-Wetland areas to be in properly functioning condition as defined in BLM Tech Reference 1737-9 1993.***	Decision could be maintained by adding the following: ***The objective is for Riparian-Wetland areas to be in properly functioning condition as defined in BLM Tech Reference 1737-9 1993.***

EXISTING RMP DECISION	HOW S&Gs WILL AFFECT DECISION		
	County S&G	Proposed S&G	Fallback S&G
<u>Wildlife</u> Objectives: 3. The NMDGF, the New Mexico State Forestry Resource Conservation Division, and the USFWS will be consulted prior to implementing projects that may affect listed species or their habitat. Management activities in habitat for threatened, endangered, or sensitive species will be designed to benefit those species, or at least minimize any potential adverse influence of the activity on the species.	Objective would not need to be maintained under this alterative.	Decision could be maintained by adding the following: ...activity on the species***, and to be consistent with multiple use concepts and other Statutory requirements.***	Decision could be maintained by adding the following: ...activity on the species***, and to be consistent with multiple use concepts and other Statutory requirements.***

FARMINGTON RMP

EXISTING RMP DECISION	HOW S&Gs WILL AFFECT DECISION		
	County S&G	Proposed RAC S&G	Fallback S&G
Issue #1 - Land Ownership Adjustments - Actively pursue consolidated land ownership patterns by acquiring non-BLM lands in acquisition zones including special management areas, exchanging public lands out of BLM administration in the exchange zone, and disposing of land parcels specifically listed in the RMP. (pg 2-3)	Decision could be maintained by changing the decision as follows: Actively pursue consolidated land ownership patterns *capable of attaining resource functions commensurate with Public Land health standards* by acquiring non-BLM lands in acquisition zones including special management areas, exchanging public lands out of BLM administration in the exchange zone, and disposing of land parcels specifically listed in the RMP.	Decision could be maintained with the same wording shown for the county S&G alternative.	Decision could be maintained with the same wording shown for the county S&G alternative.
Issue #2 - Home Use Fuel Sources - Allow greenwood cutting in order to salvage trees scheduled for clearing in areas proposed for surface mining and land improvement projects. Allow collection of dead and down fuelwood Resource Area wide except in Special Management Areas prohibiting this activity. Examine domestic use license applications on a case-by-case basis. (pg 2-3)	Decision could be maintained by changing the first sentence to read as follows: Allow greenwood cutting in order to salvage trees scheduled for clearing in areas proposed for surface mining and *as* land improvement projects *to enhance resource functions commensurate with Public Land health standards.*	Decision could be maintained with the same wording shown for the county S&G alternative.	Decision could be maintained with the same wording shown for the county S&G alternative.

EXISTING RMP DECISION	HOW S&Gs WILL AFFECT DECISION		
	County S&G	Proposed RAC S&G	Fallback S&G
Issue #3 - Special Management Areas - Strive to achieve the land allocation management goal stated for each SMA and *resource function commensurate with Public Land health standards in (*1)* the management objectives identified in future activity plans. Implement the management prescriptions for each SMA. Assess future proposals for SMA designation based on existing representation in the SMA spectrum and the need for intensive management attention above that afforded by normal operations. Complete ACEC implementation plans by FY 90. (pg 2-3)	Decision could be maintained by changing the first sentence to read as follows: Strive to achieve the land allocation management goal stated for each SMA and *resource function commensurate with Public Land health standards in* the management objectives identified in future activity plans.	Decision could be maintained with the same wording shown for the county S&G alternative.	Decision could be maintained with the same wording shown for the county S&G alternative.
Guidance: Minerals - The objective of the minerals program is to provide for the public use of leasable, locatable, and saleable minerals consistent with the laws that govern these activities and to minimize environmental damage. (pg 2-8)	Decision could be maintained by changing it to read as follows: The objective of the minerals program is to provide for the public use of leasable, locatable, and saleable minerals consistent with the laws that govern these activities and to minimize environmental damage *to preserve natural functions commensurate with Public Land health standard.*	Decision could be maintained with the same wording shown for the county S&G alternative.	Decision could be maintained with the same wording shown for the county S&G alternative.
Issue #5 - Transportation - Complete ORV designation implementation plans according to BLM manual 8341 by FY 90 and begin monitoring. Acquire easements as needed. (pg 2-3)	Decision could be maintained by changing the first sentence to read as follows: Complete ORV designation implementation plans according to BLM manual 8341 by FY 90 and begin monitoring *to preserve natural functions within acceptable limits of Public Land health standard.*	Decision could be maintained with the same wording shown for the county S&G alternative.	Decision could be maintained with the same wording shown for the county S&G alternative.

EXISTING RMP DECISION	HOW S&Gs WILL AFFECT DECISION		
	County S&G	Proposed RAC S&G	Fallback S&G
Issue #7 - Rights-of-Way Corridors and Windows- Examine applications for Right-of-Way Corridors on a case-by-case basis. (pg 2-3)	Decision could be maintained by changing it to read as follows: Examine applications for Right-of-Way Corridors on a case-by-case basis, *preserve resource function commensurate with Public Land health standard*.	Decision could be maintained with the same wording shown for the county S&G alternative.	Decision could be maintained with the same wording shown for the county S&G alternative.

APPENDIX C-1
LETTER ON SECTION 7 CONSULTATION TO USF&WS

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
New Mexico State Office
1474 Rodeo Road
P. O. Box 27115
Santa Fe, New Mexico 87502-011

IN REPLY REFER TO:
(931) 1610/6840 OCT 23 1996

Ms. Jennifer Fowler-Propst
Field Supervisor
Ecological Services State Office
U.S. Fish and Wildlife Service
2105 Osuna NE,
Albuquerque, NM 87113

Dear Ms. Fowler-Propst,

The Bureau of Land Management, New Mexico State Office (BLM, NMSO) is beginning the preparation of an Environmental Impact Statement (EIS) concerning the implementation of the new grazing regulations, resulting from the 1994 Rangeland Reform effort. We will specifically be selecting a set of standards, for public land health and guidelines for livestock grazing, from a range of alternatives that would guide management on BLM managed public lands in New Mexico. In the process, each of the eight (8) Resource Management Plans (one in each Resource Area, and the Farmington District) would be amended to incorporate these standards.

An initial draft of the EIS (Chapter 1, Purpose and Need) is attached to provide more information regarding the EIS. A team composed of BLM specialists from various offices has been assembled to prepare this document. J.W. Whitney, in the BLM, NMSO is the team leader. Mike Howard, in the Las Cruces District, has been assigned responsibility to complete the Vegetation and Special Status Species Sections, and the Biological Assessment. In addition, it is possible that a group of individuals representing the State of New Mexico will assist in development of the EIS. The EIS is scheduled to be completed in early August 1997. Preparation is on an extremely tight time frame.

At this time we would like to initiate Informal Section 7 Consultation and request an official list of listed, proposed and category 1 species to be considered in this effort. We

would appreciate having separate lists of species on public lands for each county of New Mexico.

If you have any questions regarding the project, please contact Mike Howard at (505) 525-4248, or J.W. Whitney at 505 438-7438.

Sincerely.

s/ Bill Overbaugh for

Richard A. Whitley
Deputy State Director
Resource, Planning,
Use and Protection

1 Enclosure:
Draft EIS Chapter 1 (6 pp)

cc:
NM (03000, Mike Howard)
NM (93100, J.W. Whitney)

APPENDIX C-2
LETTER ON SECTION 7 CONSULTATION FROM USF&WS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 761-4525 Fax: (505) 761-4542

November 8, 1996

Cons. #2-22-97-l-049

Memorandum

To: Deputy State Director, Bureau of Land Management, Santa Fe, New Mexico

From: Field Supervisor, New Mexico Ecological Services Field Office, U.S. Fish and Wildlife Service, Albuquerque, New Mexico

Subject: Request for Species List

This responds to your October 23, 1996, memorandum requesting a list of species federally listed or proposed to be listed as endangered or threatened. The proposed project is preparation of an Environmental Impact Statement concerning the implementation of new grazing regulations resulting from the 1994 Rangeland Reform effort. As requested, a list of endangered, threatened, and candidate species, and species of concern for each county in New Mexico is attached. Under the Endangered Species Act, it is the responsibility of the Federal action agency or its designated representative to determine whether the proposed action "may affect" any listed or proposed species.

Candidates are those species for which the U.S. Fish and Wildlife Service (Service) has sufficient information on their biological status and threats to propose them as endangered or threatened, but for which issuance of a proposed rule is precluded by work on higher priority species. Species of concern include those for which further biological research and field study are needed to resolve their conservation status. Candidate species and species of concern have no legal protection under the Endangered Species Act and are included in this document for planning purposes only. However, the Service is concerned and would appreciate receiving any status information that is available or gathered on these species.

We suggest you contact the New Mexico Department of Game and Fish and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry and Resources Conservation Division for information concerning fish, wildlife, and plants of State concern.

If we can be of further assistance, please contact Sonja Jahrsdoerfer at (505) 761-4525.

s/Jennifer Fowler-Propst

Attachment

cc: (wo/attch)
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry and Resources Conservation Division, Santa Fe, New Mexico

July 8, 1996

NEW MEXICO COUNTY LIST
ENDANGERED, THREATENED, AND CANDIDATE SPECIES
AND SPECIES OF CONCERN

Bernalillo

Arizona black-tailed prairie dog, Cynomys ludovicianus arizonensis, SC
Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (=western) big-eared bat, Plecotus townsendii pallescens, SC
Pecos River muskrat, Ondatra zibethicus ripensis, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Rio Grande silvery minnow, Hybognathus amarus, E w/PCH
Texas horned lizard, Phrynosoma cornutum, SC
Millipede, Toltecus chihuanus, SC

Catron

Allen's (Mexican) big-eared bat, Idionycteris (= Plecotus) phyllotis, SC
Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Cave myotis, Myotis velifer, SC
Greater western mastiff bat, Eumops perotis californicus, SC
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
Occult little brown bat, Myotis lucifuqus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Southwestern Otter, Lutra canadensis sonorae, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Brown pelican, Pelecanus occidentalis, E
Ferruginous hawk, Buteo regalis, SC
Interior least tern, Sterna antillarum, E
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax trailli extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
Chihuahua catfish, Ictalurus sp.*, SC
Desert sucker, Catostomus clarki, SC
Gila chub, Gila intermedia, SC
Gila trout, Oncorhynchus gilae, E
Loach minnow, Rhinichthys cobitis, T
Longfin dace, Agosia chrysogaster, SC
Roundtail chub, Gila robusta, SC
Sonora sucker, Catostomus insignis, SC
Speckled dace, Rhinichthys osculus (Gila drainage), SC
Spikedace, Meda fulgida, T
Arizona southwestern toad, Bufo microscaphus microscaphus, SC
Chiricahua leopard frog, Rana chiricahuensis, SC
Lowland leopard frog, Rana yavapaiensis, SC
Mexican garter snake, Thamnophis eques, SC
Narrowhead garter snake, Thamnophis rufipunctatus, SC
Blumer dock, Rumex orthoneurus, C

Catron, continued

Gila groundsel, Senecio quaerens, SC
Goodding's onion, Allium gooddingii, C
Hess' fleabane, Erigeron hessii, SC
Mogollon clover, Trifolium longipes var. neurophyllum, SC
Santa Fe cholla, Opuntia viridiflora, SC
Zuni (= rhizome) fleabane, Erigeron rhizomatus, T

Chaves

Arizona black-tailed prairie dog, Cynomys ludovicianus arizonensis, SC
Black-footed ferret, Mustela nigripes, E
Cave myotis, Myotis velifer, SC
Desert pocket gopher, Geomys bursarius arenarius, SC
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Pecos River muskrat, Ondatra zibethicus ripensis, SC
Small-footed myotis, Myotis ciliolabrum, SC
Swift fox, Vulpes velox, C
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Brown pelican, Pelecanus occidentalis, E
Ferruginous hawk, Buteo regalis, SC
Interior least tern, Sterna antillarum, E
Loggerhead shrike, Lanius ludovicianus, SC
Mountain plover, Charadrius montanus, C
Northern aplomado falcon, Falco femoralis septentrionalis, E
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Arkansas River shiner, Notropis girardi, PE w/CH
Headwater catfish, Ictalurus lupus, SC
Pecos bluntnose shiner, Notropis simus pecosensis, T w/CH
Pecos gambusia, Gambusia nobilis, E
Pecos pupfish, Cyprinodon pecosensis, C
Plains minnow, Hybognathus placitus*, SC
Rio Grande shiner, Notropis jemezanus, SC
Dunes sagebrush lizard, Sceloporus arenicolus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Koster's tryonia (springsnail), Tryonia kosteri, C
Noel's amphipod, Gammarus desperatus, SC
Pecos assiminea snail, Assiminea pecos, C
Roswell springsnail, "Fontelicella" roswellensis, C
Kuenzler hedgehog cactus, Echinocereus fendleri var. kuenzleri, E
Puzzle sunflower, Helianthus paradoxus, C
Wright's marsh thistle, Cirsium wrightii, SC

Cibola

Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Cebolleta southern pocket gopher, Thomomys umbrinus paquatae, SC
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
Occult little brown bat, Myotis lucifuqus occultus, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
Zuni bluehead sucker, Catostomus discobolus yarrowi, SC
Texas horned lizard, Phrynosoma cornutum, SC
Acoma fleabane, Erigeron acomanus, SC
Cinder phacelia, Phacelia serrata, SC
Gypsum phacelia, Phacelia sp. nov./ined., SC
Puzzle sunflower, Helianthus paradoxus, C
Santa Fe cholla, Opuntia viridiflora, SC
Zuni (=rhizome) fleabane, Erigeron rhizomatus, T

Colfax

Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Swift fox, Vulpes velox, C
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Loggerhead shrike, Lanius ludovicianus, SC
Ferruginous hawk, Buteo regalis, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Piping plover, Charadrius melodus, T
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Flathead chub, Platygobio (= Hybopsis) giracilis, SC
Plains minnow, Hybognathus placitus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Dwarf milkweed, Asclepias uncialis var. uncialis, SC

Curry

Black-footed ferret, Mustela nigripes, E
Swift fox, Vulpes velox, C
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Western burrowing owl, Athene cunicularia hypugea, SC
Texas horned lizard, Phrynosoma cornutum, SC

DeBaca

Black-footed ferret, Mustela nigripes, E
Swift fox, Vulpes velox, C
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Interior least tern, Sterna antillarum, E
Loggerhead shrike, Lanius ludovicianus, SC
Mountain plover, Charadrius montanus, C
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Headwater catfish, Ictalurus lupus, SC
Pecos bluntnose shiner, Notropis simus pecosensis, T w/CH
Plains minnow, Hybognathus placitus*, SC
Rio Grande shiner, Notropis jemezanus, SC
Texas horned lizard, Phrynosoma cornutum, SC

Doña Ana

Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Desert pocket gopher, Geomys bursarius arenarius, SC
Fringed myotis, Myotis thysanodes, SC
Greater western mastiff bat, Eumops perotis californicus, SC
Long-legged myotis, Myotis volans, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Organ Mountains Colorado chipmunk, Eutamias quadrivittatus australis, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Pecos River muskrat, Ondatra zibethicus ripensis, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
White Sands woodrat, Neotoma micropus leucophaea, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Ferruginous hawk, Buteo regalis, SC
Interior least tern, Sterna antillarum, E
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Northern aplomado falcon, Falco femoralis septentrionalis, E
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Texas horned lizard, Phrynosoma cornutum, SC
Anthony blister beetle, Lytta mirifica, SC
Doña Ana talussnail, Sonorella todseni, SC
Alamo beardtongue, Penstemon alamosensis, SC
Desert night-blooming cereus, Cereus greggii var. greggii, SC
Mescalero milkwort, Polygala rimulicola var. mescalerorum, SC
Nodding rock-daisy, Perityle cernua, SC
Organ Mountain evening-primrose, Oenothera organensis, SC
Organ Mountain figwort, Scrophularia laevis, SC
Sand prickly pear, Opuntia arenaria, SC
Sandhill goosefoot, Chenopodium cycloides, SC
Sneed pincushion cactus, Coryphantha sneedii var. sneedii, E
Standley whitlow-grass, Draba standleyi, SC

Eddy

Arizona black-tailed prairie dog, Cynomys ludovicianus arizonensis, SC
Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Cave myotis, Myotis velifer, SC
Fringed myotis, Myotis thysanodes, SC
Gray-footed chipmunk, Tamias canipes, SC
Guadalupe southern pocket gopher, Thomomys umbrinus guadalupensis, SC
Long-legged myotis, Myotis volans, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Pecos River muskrat, Ondatra zibethicus ripensis, SC
Small-footed myotis, Myotis ciliolabrum, SC
Swift fox, Vulpes velox, C
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Brown pelican, Pelecanus occidentalis, E
Ferruginous hawk, Buteo regalis, SC
Interior least tern, Sterna antillarum, E
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Northern aplomado falcon, Falco femoralis septentrionalis, E
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Blue sucker, Cycleptus elongatus, SC
Headwater catfish, Ictalurus lupus, SC
Pecos bluntnose shiner, Notropis simus pecosensis, T w/CH
Pecos gambusia, Gambusia nobilis, E
Pecos pupfish, Cyprinodon pecosensis, C
Plains minnow, Hybognathus placitus*, SC
Rio Grande shiner, Notropis jemezanus, SC
Dunes sagebrush lizard, Sceloporus arenicolus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Ovate vertigo (snail), Vertigo ovata, SC
Pecos springsnail, “Fontelicella” pecosensis, SC
Texas hornshell (mussel), Popenaias popei, SC
Few-flowered jewelflower, Streptanthus sparsiflorus, SC
Glass Mountain coral-root, Hexalectris nitida, SC
Guadalupe rabbitbrush, Chrysothamnus nauseosus var. texemsis, SC

Eddy, continued

Gypsum wild-buckwheat, Eriogonum gypsophilum, T w/CH
Kuenzler hedgehog cactus, Echinocereus fendleri var. Kuenzleri, E
Lee pincushion cactus, Coryphantha sneedii var. leei, T
Lloyd's hedgehog cactus, Echinocereus lloydii, E
Mat leastdaisy, Chaetopappa hersheyi, SC
Tharp's blue-star, Amsonia tharpii, SC
Wright's water-willow, Justicia wrightii, SC

Grant

Black-footed ferret, Mustela nigripes, E
Cave myotis, Myotis velifer, SC
Fringed myotis, Myotis thysanodes, SC
Greater western mastiff bat, Eumops perotis californicus, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
Mexican gray wolf, Canis lupus baileyi, E
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
White-sided jackrabbit, Lepus callotis gaillardi, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Brown pelican, Pelecanus occidentalis, E
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Northern aplomado falcon, Falco femoralis septentrionalis, E
Northern goshawk, Accipiter gentilis, SC
Northern gray hawk, Buteo nitidus maximus, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Whooping crane, Grus americana, E
Beautiful shiner, Cyprinella formosa, T
Chihuahua chub, Gila nigrescens, T
Desert sucker, Catostomus clarki, SC
Gila chub, Gila intermedia, SC
Gila topminnow, Poeciliopsis occidentalis, E
Gila trout, Oncorhynchus gilae, E
Loach minnow, Rhinichthys cobitis, T
Longfin dace, Agosia chrysogaster, SC
Roundtail chub, Gila robusta, SC
Sonora sucker, Catostomus insignis, SC
Speckled dace, Rhinichthys osculus (Gila drainage), SC
Spikedace, Meda fulgida, T
Mexican garter snake, Thamnophis eques, SC
Narrowhead garter snake, Thamnophis rufipunctatus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Arizona southwestern toad, Bufo microscaphus microscaphus, SC
Chiricahua leopard frog, Rana chiricahuensis, C
Lowland leopard frog, Rana yavapaiensis, SC

Grant, continued

Gila springsnail, "Fontelicella" gilae, C
New Mexico hotspring snail, "Fontelicella" thermals, C
Shortneck snaggletooth (snail), Gastrocopta dalliana dalliana, SC
Desert night-blooming cereus, Cereus qreggii var greggii, SC
Dwarf milkweed, Asclepias uncialis var. uncialis, SC
Parish's alkali grass, Puccinellia parishii, PE
Pinos Altos fameflower, Talinum humile, SC
Porsild's starwort, Stellaria porsildii, SC
San Carlos wild-buckwheat, Eriogonum capillare, SC
Slender spiderflower, Cleome multicaulis, SC
Wright's dogweed, Adenophyllum wrightii var. wrightii, SC

Guadalupe

Black-footed ferret, Mustela nigripes, E
Pecos River muskrat, Ondatra zibethicus ripensis, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Swift fox, Vulpes velox, C
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Brown pelican, Pelecanus occidentalis, E
Ferruginous hawk, Buteo regolis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mountain plover, Charadrius montanus, C
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
White-faced ibis, Plegadis chihi, SC
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Plains minnow, Hybognathus placitus*, SC
Rio Grande shiner, Notropis jemezanus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Puzzle sunflower, Helianthus paradoxus, C
Wright's marsh thistle, Cirsium wrightii, SC

Harding

Black-footed ferret, Mustela nigripes, E
Swift fox, Vulpes velox, C
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mountain plover, Charadrius montanus, C
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Arkansas River shiner, Notropis girardi, PE w/CH
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Plains minnow, Hybognathus placitus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Santa Fe cholla, Opuntia viridiflora, SC
Spellenberg's groundsel, Senecio spellenbergii, SC

Hidalgo

Arizona shrew, Sorex arizonae, SC
Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
California leaf-nosed bat, Macrotus californicus, SC
Cave myotis, Myotis velifer, SC
Fringed myotis, Myotis thysanodes, SC
Greater western mastiff bat, Eumops perotis californicus, SC
Lesser long-nosed bat, Leptonycteris curasoae yerbabuenae, E
Long-legged myotis, Myotis volans, SC
Mearns' southern pocket gopher, Thomomys umbrinus mearnsi, SC
Mexican gray wolf, Canis lupus baileyi, E
Mexican long-nosed bat, Leptonycteris nivalis, E
Mexican long-tongued bat, Choeronycteris mexicana, SC
Occult little brown bat, Myotis lucifuqus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
White-sided jackrabbit, Lepus callotis gaillardi, SC
Yellow-nosed cotton rat, Sigmodon ochrognathus, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Northern aplomado falcon, Falco femoralis septentrionalis, E
Northern goshawk, Accipiter gentilis, SC
Northern gray hawk, Buteo nitidus maximus, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
Desert sucker, Catostomus clarki, SC
Loach minnow, Rhinichthys cobitis, T
Longfin dace, Agosia chrysogaster, SC
Roundtail chub, Gila robusta, SC
Sonora sucker, Catostomus insignis, SC
Spikedace, Meda fulgida, T
Canyon (giant) spotted whiptail, Cnemidophorus burti, SC
Gray-checkered whiptail, Cnemidophorus dixoni, SC
Mexican garter snake, Thamnophis eques, SC
Narrowhead garter snake, Thamnophis rufipunctatus, SC
New Mexican ridge-nosed rattlesnake, Crotalus willardi obscurus, T w/CH
Texas horned lizard, Phrynosoma cornutum, SC

Hidalgo, continued

Arizona southwestern toad, Bufo microscaphus microscaphus, SC
Chiricahua leopard frog, Rana chiricahuensis, C
Lowland leopard frog, Rana yavapaiensis, SC
Animas minute moss beetle, Limnebius aridus, SC
Hacheta Grande woodlandsnail, Ashmunella hebardi, SC
Shortneck snaggletooth (snail), Gastrocopta dalliana dalliana, SC
Chiricahua mudwort, Limosella publiflora, SC
Contra yerba, Pediomelum pentaphyllum, SC
Coppermine milk-vetch, Astracgalus cobrensis var. maguirei, SC
Desert night-blooming cereus, Cereus greggii var. greggii, SC
Griffith's saltbush, Atriplex griffithsii, SC
Gypsum hotspring aster, Machaeranthera gypsitherma, SC
Limestone rosewood, Vauquelinia californica ssp. pauciflora, SC
Ornate paintbrush, Castilleja ornata, SC
Parish's alkali grass, Puccinellia parishii, PE
San Carlos wild-buckwheat, Eriogonum capillare, SC

Lea

Black-footed ferret, Mustela nigripes, E
Cave myotis, Myotis velifer, SC
Swift fox, Vulpes velox, C
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Northern aplomado falcon, Falco femoralis septentrionalis, E
Western burrowing owl, Athene cunicularia hypugea, SC
Dunes sagebrush lizard, Sceloporus arenicolus, SC
Texas horned lizard, Phrynosoma cornutum, SC

Lincoln

Arizona black-tailed prairie dog, Cynomys ludovicianus arizonensis, SC
Black-footed ferret, Mustela nigripes, E
Cave myotis, Myotis velifer, SC
Fringed myotis, Myotis thysanodes, SC
Gray-footed chipmunk, Tamias canipes, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Organ Mountains Colorado chipmunk, Eutamias quadrivittatus australis, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Pecos River muskrat, Ondatra zibethicus ripensis, SC
Small-footed myotis, Myotis ciliolabrum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern aplomado falcon, Falco femoralis septentrionalis, E
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Longfin dace, Agosia chrysogaster*, SC
White Sands pupfish, Cyprinodon tularosa, SC
Sacramento mountain salamander, Aneides hardii, SC
Texas horned lizard, Phrynosoma cornutum, SC
Bonita diving beetle, Deronectes neomexicana, SC
Goodding's onion, Allium gooddingii, C
Kuenzler hedgehog cactus, Echinocereus fendleri var. kuenzleri, E
Sierra Blanca cliffdaisy, Chaetopappa elegans, SC
Wright's marsh thistle, Cirsium wrightii, SC

Los Alamos

Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Goat Peak pika, Ochotona princeps nigrescens, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Spotted bat, Euderma maculatum, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Loggerhead shrike, Lanius ludovicianus, SC
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Jemez Mountains salamander, Plethodon neomexicanus, SC

Luna

Black-footed ferret, Mustela nigripes, E
Cave myotis, Myotis velifer, SC
Desert pocket gopher, Geomys bursarius arenarius, SC
Fringed myotis, Myotis thysanodes, SC
Greater western mastiff bat, Eumops perotis californicus, SC
Long-legged myotis, Myotis volans, SC
Mexican gray wolf, Canis lupus baileyi, E
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Spotted bat, Euderma maculatum, SC
White-sided jackrabbit, Lepus callotis gaillardi, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mountain plover, Charadrius montanus, C
Northern aplomado falcon, Falco femoralis septentrionalis, E
Northern gray hawk, Buteo nitidus maximus, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
Whooping crane, Grus americana, E
Beautiful shiner, Cyprinella formosa, T
Longfin dace, Agosia chrysogaster, SC
Chiricahua leopard frog, Rana chiricahuensis, C
Texas horned lizard, Phrynosoma cornutum, SC
Cook's Peak woodlandsnail, Ashmunella macromphala, SC
Florida mountainsnail, Oreohelix florida, SC
Shortneck snaggletooth (snail), Gastrocopta dalliana dalliana, SC
Desert night-blooming cereus, Cereus greggii var. greggii, SC
Sand prickly pear, Opuntia arenaria, SC

McKinley

Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
Occult little brown bat, Myotis lucifuqus occultus, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Zuni bluehead sucker, Catostomus discobolus yarrowi, SC
Acoma fleabane, Erigeron acomanus, SC
Arizona leatherflower, Clematis hirsutissima var arizonica, C
Goodding's onion, Allium gooddingii, C
Parish's alkali grass, Puccinellia parishii, PE
Sivinski's fleabane, Erigeron sivinskii, SC
Zuni (=rhizome) fleabane, Erigeron rhizomatus, T

Mora

Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Spotted bat, Euderma maculatum, SC
Swift fox, Vulpes velox, C
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Arkansas River shiner, Notropis girardi, PE w/CH
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Texas horned lizard, Phrynosoma cornutum, SC

Otero

Arizona black-tailed prairie dog, Cynomys ludovicianus arizonensis, SC
Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Cave myotis, Myotis velifer, SC
Desert pocket gopher, Geomys bursarius arenarius, SC
Fringed myotis, Myotis thysanodes, SC
Gray-footed chipmunk, Tamias canipes, SC
Greater western mastiff bat, Eumops perotis californicus, SC
Guadalupe southern pocket gopher, Thomomys umbrinus guadalupensis, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Small-footed myotis, Myotis ciliolabrum, SC
White Sands woodrat, Neotoma micropus leucophaea, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T(S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Ferruginous hawk, Buteo regalis, SC
Interior least tern, Sterna antillarum athalassos, E
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Northern aplomado falcon, Falco femoralis septentrionalis, E
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
White Sands pupfish, Cyprinodon tularosa, SC
Sacramento mountain salamander, Aneides hardii, SC
Texas horned lizard, Phrynosoma cornutum, SC
Alamo beardtongue, Penstemon alamosensis, SC
Desert night-blooming cereus, Cereus greggii var. greggii, SC
Goodding's onion, Allium gooddingii, C
Guadalupe rabbitbrush, Chrysothamnus nauseosus var. texensis, SC
Gypsum scalebroom, Lepidospartum burgessii, SC
Kuenzler hedgehog cactus, Echinocereus fendleri var. kuenzleri, E
Sacramento Mountains thistle, Cirsium vinaceum, T
Sacramento prickly poppy, Argemone pleiacantha ssp. pinnatisecta, E
Sierra Blanca cliffdaisy, Chaetopappa elegans, SC
Todsen's pennyroyal, Hedeoma todsenii, E
Villard's pincushion cactus, Escobaria villardii, SC
Wright's marsh thistle, Cirsium wrightii, SC

Quay

Black-footed ferret, Mustela nigripes, E
Swift fox, Vulpes velox, C
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mountain plover, Charadrius montanus, C
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Arkansas River shiner, Notropis girardi, PE w/CH
Arkansas River speckled chub, Hybopsis aestivalis tetranemus, SC
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Plains minnow, Hybognathus placitus, SC
Texas horned lizard, Phrynosoma cornutum, SC

Rio Arriba

Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Goat Peak pika, Ochotona princeps nigrescens, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Small-footed myotis, Myotis ciliolabrum, SC
Southwestern otter, Lutra canadensis sonorae, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Ferruginous hawk, Buteo regalis, SC
Harlequin duck, Histrionicus histrionicus, SC
Interior least tern, Sterna antillarum athalassos, E
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Colorado squawfish, Ptychocheilus lucius, E
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Roundtail chub, Gila robusta, SC
Boreal western toad, Bufo boreas boreas, C
Jemez Mountains salamander, Plethodon neomexicanus, SC
Arizona willow, Salix arizonica, SC
Ripley milk-vetch, Astragalus ripleyi, SC

Roosevelt

Black-footed ferret, Mustela nigripes, E
Swift fox, Vulpes velox, C
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Western burrowing owl, Athene cunicularia hypugea, SC
Whooping crane, Grus americana, E
Dunes sagebrush lizard, Sceloporus arenicolus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Sandhill goosefoot, Chenopodium cycloides, SC

Sandoval

Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Goat Peak pika, Ochotona princeps nigrescens, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Rio Grande silvery minnow, Hybognathus amarus, E w/PCH
Jemez Mountain salamander, Plethodon neomexicanus, SC
Gypsum phacelia, Phacelia sp. nov./ined., SC
Gypsum townsendia, Townsendia gypsophila, SC
Knight's milk-vetch, Astragalus knightii, SC
Parish's alkali grass, Puccinellia parishii, PE

San Juan

Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Brown pelican, Pelecanus occidentalis, E
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Colorado squawfish, Ptychocheilus lucius, E
Razorback sucker, Xyrauchen texanus, E
Roundtail chub, Gila robusta, SC
Arizona leatherflower, Clematis hirsutissima var. arizonica, C
Beautiful gilia, Gilia formosa, SC
Bisti fleabane, Erigeron bistiensis, SC
Brack's fishhook cactus, Sclerocactus cloveriae var. brackii, SC
Goodding's onion, Allium gooddingii, C
Knowlton cactus, Pediocactus knowltonii, E
Mancos milk-vetch, Astragalus humillimus, E
Mesa Verde cactus, Sclerocactus mesae-verdae, T
Parish's alkali grass, Puccinellia parishii, PE
Santa Fe cholla, Opuntia viridiflora, SC

San Miguel

Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Pecos River muskrat, Ondatra zibethicus ripensis, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Swift fox, Vulpes velox, C
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Brown pelican, Pelecanus occidentalis, E
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Arkansas River shiner, Notropis girardi, PE w/CH
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Plains minnow, Hybognathus placitus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Dwarf milkweed, Asclepias uncialis var. uncialis, SC
Holy Ghost ipomopsis, Ipomopsis sancti-spritus, E

Santa Fe

Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (=western) big-eared bat, Plecotus townsendii pallescens, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Texas horned lizard, Phrynosoma cornutum, SC
Santa Fe cholla, Opuntia viridiflora, SC

Sierra

Arizona black-tailed prairie dog, Cynomys ludovicianus arizonensis, SC
Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Greater western mastiff bat, Eumops perotis californicus, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Organ Mountains Colorado chipmunk, Eutamias quadrivittatus australis, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Southwestern otter, Lutra canadensis sonorae, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
White Sands woodrat, Neotoma micropus leucophaea, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Brown pelican, Pelecanus occidentalis, E
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Northern aplomado falcon, Falco femoralis septentrionalis, E
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Desert sucker, Catostomus clarki, SC
Gila trout, Oncorhynchus gilae, E
Longfin dace, Agosia chrvsogaster*, SC
Sonora sucker, Catostomus insignis, SC
Speckled dace, Rhinichthys osculus (Gila drainage), SC
White Sands pupfish, Cyprinodon tularosa, SC
Arizona southwestern toad, Bufo microscaphus microscaphus, SC
Chiricahua leopard frog, Rana chiricahuensis, C
Texas horned lizard, Phrynosoma cornutum, SC
Mineral Creek mountainsnail, Oreohelix pilsbryi, SC
Duncan's cory cactus, Coryphantha duncanii, SC
Pinos Altos fameflower, Talinum humile, SC
Sandhill goosefoot, Chenopodium cycloides, SC
Todsen's pennyroyal, Hedeoma todsenii, E w/CH

Socorro

Allen's (Mexican) big-eared bat, Idionycteris (= Plecotus) phyllotis, SC
Arizona black-tailed prairie dog, Cynomys ludovicianus arizonensis, SC
Black-footed ferret, Mustela nigripes, E
Desert pocket gopher, Geomys bursarius arenarius, SC
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
New Mexican meadow Jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Organ Mountains Colorado chipmunk, Eutamias quadrivittatus australis, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Pecos River muskrat, Ondatra zibethicus ripensis, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Ferruginous hawk, Buteo regalis, SC
Interior least tern, Sterna antillarum, E
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern aplomado falcon, Falco femoralis septentrionalis, E
Northern goshawk, Accipiter gentilis, SC
Piping plover, Charadrius melodus, T
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E w/CH
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Longfin dace, Agosia chrysogaster*, SC
Rio Grande silvery minnow, Hybognathus amarus, E w/PCH
Arizona southwestern toad, Bufo microscaphus microscaphus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Chiricahua leopard frog, Rana chiricahuensis, SC
Socorro isopod, Exosphaeroma thermophilus, E
Alamosa springsnail, Tryonia alamosae, E
Chupadera springsnail, "Fontelicella" chupaderae, C
Socorro springsnail "Fontelicella" neomexicana, E
Fugate's blue-star, Amsonia fugatei, SC
Sandhill goosefoot, Chenopodium cycloides, SC

Taos

Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
New Mexican jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Small-footed myotis, Myotis ciliolabrum, SC
Southwestern otter, Lutra canadensis sonorae, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Harlequin duck, Histrionicus histrionicus, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Cockerell's striate disc (snail), Discus shemeki cockerelli, SC
Sangre de Cristo peaclam, Pisidium sanguinichristi, SC
Arizona willow, Salix arizonica, SC
Ripley milk-vetch, Astragalus ripleyi, SC

Torrance

Arizona black-tailed prairie dog, Cynomys ludovicianus arizonensis, SC
Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-legged myotis, Myotis volans, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Spotted bat, Euderma maculatum, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Black tern, Chlidonias niger, SC
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Northern goshawk, Accipiter gentilis, SC
Texas horned lizard, Phrynosoma cornutum, SC

Union

Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-legged myotis, Myotis volans, SC
Pale Townsend's (= western) big-eared bat, Plecotus townsendii pallescens, SC
Small-footed myotis, Myotis ciliolabrum, SC
Swift fox, Vulpes velox, C
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Arkansas River shiner, Notropis girardi, PE w/CH
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Plains minnow, Hybognathus placitus, SC
Texas horned lizard, Phrynosoma cornutum, SC
Dwarf milkweed, Asclepias uncialis var. uncialis, SC

Valencia

Arizona black-tailed prairie dog, Cynomys ludovicianus arizonensis, SC
Big free-tailed bat, Nyctinomops macrotis (= Tadarida m., T. molossa), SC
Black-footed ferret, Mustela nigripes, E
Fringed myotis, Myotis thysanodes, SC
Long-eared myotis, Myotis evotis, SC
Long-legged myotis, Myotis volans, SC
New Mexican jumping mouse, Zapus hudsonius luteus, SC
Occult little brown bat, Myotis lucifugus occultus, SC
Pecos River muskrat, Ondatra zibethicus ripensis, SC
Small-footed myotis, Myotis ciliolabrum, SC
Spotted bat, Euderma maculatum, SC
Yuma myotis, Myotis yumanensis, SC
American peregrine falcon, Falco peregrinus anatum, E
Arctic peregrine falcon, Falco peregrinus tundrius, T (S/A)
Baird's sparrow, Ammodramus bairdii, SC
Bald eagle, Haliaeetus leucocephalus, T
Ferruginous hawk, Buteo regalis, SC
Loggerhead shrike, Lanius ludovicianus, SC
Mexican spotted owl, Strix occidentalis lucida, T w/CH
Mountain plover, Charadrius montanus, C
Northern goshawk, Accipiter gentilis, SC
Southwestern willow flycatcher, Empidonax traillii extimus, E w/PCH
Western burrowing owl, Athene cunicularia hypugea, SC
White-faced ibis, Plegadis chihi, SC
Whooping crane, Grus americana, E
Flathead chub, Platygobio (= Hybopsis) gracilis, SC
Rio Grande silvery minnow, Hybognathus amarus, E w/PCH
Puzzle sunflower, Helianthus paradoxus, C

Index

E	=	Endangered
PE	=	Proposed Endangered
PE w/CH	=	Proposed Endangered with critical habitat
T	=	Threatened
PT	=	Proposed Threatened
PT w/CH	=	Proposed Threatened with critical habitat
PCH	=	Proposed critical habitat
C	=	Candidate Species
SC	=	Species of Concern
S/A	=	Similarity of Appearance
*	=	Introduced population

TABLE A. Federally listed, proposed,and candidate species with status, presence, taxonomy, habitat, distribution, and biome information.							
Species	**Scientific Name**	**Status**	**Potentially Present On Public Land**	**Plant & Animal Class or Order**	**Habitat**	**Distribution**	**Biome**

Note - Table is split purposely to allow sorting for analysis....Table is to be sorted by columns 3 and 1 to place in Status and Species order then joined.

Chiricauhua Leopard Frog	Rana chiricahuensis	Candidate	X	Amphibian	Wetland/Riparian/ Aquatic		Aquatic/ Woodland
Lesser Long-Nosed Bat = Sanborns Longnosed Bat	Leptonycteris curasoae yerbabuenae	Endangered	X	Bat	Desert Scrub		Desert
Mexican Long Nosed Bat	Leptonycteris nivalis	Endangered	X	Bat	Desert Scrub		Desert
American Peregrine Falcon	Falco peregrinus anatum	Endangered	X	Bird	Mountain Cliffs - Wetland/Riparian/ Aquatic		Conif. Forest/ Woodland/ Grassland/ Desert/ Aquatic
Arctic Peregrine Falcon	Falco peregrinus tundrius	Threatened	X	Bird	General - Wetland/Riparian/ Aquatic		Conif. Forest/ Woodland/ Grassland/ Desert/ Aquatic
Bald Eagle	Haliaeetus leucocephalus	Threatened	X	Bird	Wetland/Riparian/ Aquatic in part		Aquatic/ Conif. Forest/ Woodland/ Grassland
Interior Least Tern	Sterna antillarum	Endangered	X	Bird	Wetland/Riparian/ Aquatic		Aquatic
Mexican Spotted Owl	Strix occidentalis lucida	Threatened w/CH	X	Bird	Mixed Conifer		Conif. Forest/ Woodland
Mountain Plover	Charadrius montanus	Candidate	X	Bird	Grasslands		Grassland
Northern Aplomado Falcon	Falco femoralis septentrionalis	Endangered	X	Bird	Desert Grassland		Grassland

Piping Plover	Charadrius melodus	Threatened	X	Bird	Wetland/Riparian/ Aquatic		Aquatic
Southwestern Willow Flycatcher	Empidonax traillii extimus	Endangered w/Proposed CH	X	Bird	Wetland/Riparian/ Aquatic		Woodland/Aquatic
Jaguar	Panthera onca	Proposed Endangered	X	Carnivore	Mountain Scrub/PJ Woodland-Wetland/Riparian/ Aquatic		Woodland/ Aquatic
Mexican Wolf	Canis lupus baileyi	Endangered	X	Carnivore	Mixed Conifer/PJ Woodland/Desert Grassland		Conif. Forest
Swift Fox	Vulpes velox	Candidate	X	Carnivore	Grasslands/ Scrub		Grassland/ Desert
Arkansas River Shiner	Notropis girardi	Proposed Endandered w/CH	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Beautiful Shiner	Cyprinella formosa	Threatened	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Colorado Squawfish	Ptychocheilus lucius	Endangered w/CH	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Loach Minnow	Rhinichthys cobitis	Threatened	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Pecos Bluntnose Shiner	Notropis simus pecosensis	Threatened w/CH	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Pecos Gambusia	Gambusia nobilis	Endangered	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Pecos Pupfish	Cyprinodon pecosensis	Candidate	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Razorback Sucker	Xyrauchen texanus	Endangered w/CH	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Rio Grande Silvery Minnow	Hybognathus amarus	Endangered w/Proposed CH	X	Fish	Wetland/Riparian/ Aquatic		Aquatic

Spikedace	Meda fulgida	Threatened	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Koster's Tryonia	Tryonia kosteri	Candidate	X	Gastropod	Wetland/Riparian/ Aquatic	Endemic	Aquatic
Pecos Assiminea	Assiminea pecos	Candidate	X	Gastropod	Wetland/Riparian/ Aquatic	Endemic	Aquatic
Roswell Springsnail (Pyrg)	Fontelicella roswellensis = Pyrgulopsis roswellensis	Candidate	X	Gastropod	Wetland/Riparian/ Aquatic	Endemic	Aquatic
Gypsum Wild Buckwheat	Eriogonum gypsophilum	Threatened w/CH	X	Plant	Desert Scrub	Endemic	Desert
Knowltons Catctus	Pediocactus knowltonii	Endangered	X	Plant	Desert Scrub	Endemic	Desert
Kuenzlers Hedgehog Cactus	Echinocereus fendleri var. Kuenzleri	Endangered	X	Plant	PJ Woodland		Woodland
Lloyds Hedgehog Cactus	Echinocereus lloydii	Endangered	X	Plant	Desert Scrub		Desert
Manco Milkvetch	Astragalus humillimus	Endangered	X	Plant	Desert Scrub	Endemic	Desert
Mesa Verde Cactus	Sclerocactus mesae-verdae	Threatened	X	Plant	Great Basin Desert Scrub	Endemic	Desert
Parishs Alkali Grass	Puccinellia parishii	Proposed Endangered	X	Plant	Wetland/Riparian/ Aquatic		Desert+ Aquatic Emergent
Puzzle Sunflower	Helianthus paradoxus	Candidate	X	Plant	Wetland/Riparian/ Aquatic		Aquatic Emergent0
Sacramento Prickly Poppy	Argemone pleiacantha ssp.pinnatisecta	Endangered	X	Plant	Desert Scrub/Desert Grassland/ Arroyo	Endoemic	Woodland/ Desert
Sneeds Pincushion Cactus	Coryphantha sneedii var. sneedii	Endangered	X	Plant	Desert Scrub	Endemic	Desert
Todsens Pennyroyal	Hedeoma todsenii	Endangered w/CH	X	Plant	PJ Woodland	Endemic	Woodland
Zuni Fleabane	Erigeron rhizomatus	Threatened	X	Plant	PJ Woodland	Endemic	Woodland

Table B. BLM Sensitive, FWS Species of Concern, and State Listed Species for New Mexico with status, presence, taxonomy, habitat, and distribution information.

Common Name	Scientific Name	Status	Potentially Present On Public Land	Plant & Animal Class or Order	Habitat	Distribution	Biome

Note - Table is split purposely to allow sorting for analysis....Table is to be sorted by columns 3 and 1 to place in Status and Species order then joined.

Crested Coral Root	Hexalectris spicata	SE	X	Plant	Madrean Evergreen Woodland		Woodland
Arizona southwestern toad	Bufo microscaphus microscaphus	BLM Sensitive	X	Amphibian	Wetland/Riparian/Aquatic		Aquatic
Colorado River Toad	Bufo alvarius	SEII	X	Amphibian	Chihuahuan Desert Scrub	Bootheel	Desert
Great Plains Narrowmouth Toad	Gastrophryne olivacea	SEI	X	Amphibian	Chihuahuan Desert Grassland		Grassland
Jemez Mountain salamander	Plethodon neomexicanus	BLM Sensitive	X	Amphibian	Mixed Conifer		Conif. Forest
Lowland leopard frog	Rana yavapaiensis	BLM Sensitive	X	Amphibian	Wetland/Riparian/Aquatic	Bootheel	Aquatic/ Woodland
Spotted Chrous Frog	Pseudacris clarkii	SEI	X	Amphibian	Plains Grassland/ Wetland/Riparian/ Aquatic		Grassland/ Aquatic
Allen's (Mexican) big-eared bat	Idionycteris (=Plecotus) phyllotis	BLM Sensitive	X	Bat	Mixed Conifer/PJ Woodland/Riparian		Conif. Forest/ Woodland
Big Free-tailed Bat	Nyctinomops macrotis	BLM Sensitive	X	Bat	Mixed Conifer/PJ Woodland/ Wetland/Riparian/Aquatic		Conif. Forest/ Woodland
California leaf-nosed bat	Macrotus californicus	BLM Sensitive	X	Bat	Chihuahuan Desert Scrub/Great Basin Desert Scrub	Bootheel	Desert

Cave myotis	Myotis velifer	BLM Sensitive	X	Bat	Chihuahuan Desert Grasslands/Great Plains Grasslands/ Chihuahuan Desert Scrub Wetland/Riparian/ Aquatic		Desert/ Grassland/ Woodland/ Aquatic
Fringed myotis	Myotis thysanodes	BLM Sensitive	X	Bat	Great Plains Grassland/Chihuah uan Desert Grassland/Great BasinDesert Scub/pj Woodland/Mixed Conifer/Madrean Evergreen Woodland/Riparian		Grassland/ Desert/ Woodland
Greater western mastiff bat	Eumops perotis californicus	BLM Sensitive	X	Bat	Madrean Evergreen Woodland	Bootheel	Woodland
Long-eared myotis	Myotis evotis	BLM Sensitive	X	Bat	Mixed Conifer/PJ Woodland/Riparian		Conif. Forest/ Woodland
Long-legged myotis	Myotis volans	BLM Sensitive	X	Bat	Mixed Conifer/PJ Woodland/Riparian		Conif. Forest/ Woodland
Mexican long-tongued bat	Choeronycteris mexicana	BLM Sensitive	X	Bat	PJ Woodland/Chihuah uan Desert Scrub/Interior Chaparral	Bootheel	Woodland/ Desert
Occult little brown bat	Myotis lucifugus occultus	BLM Sensitive	X	Bat	Mixed Conifer/PJ Woodland/Riparian		Conif. Forest/ Woodland
Pale Townsend's big-eared bat	Plecotus townsendii pallescens	BLM Sensitive	X	Bat	Mixed Conifer/PJ Woodland/Madrean Evergreen Woodland/Great Plains Grassland/Chihuah uan Desert Grassland/Great Basin Desert Scrub/Riparian		Conif. Forest/ Woodland/ Grassland/ Desert

Small-footed myotis	Myotis ciliolabrum	BLM Sensitive	X	Bat	Mixed Conifer/PJ Woodland/Great Plains Grassland/Chihuahuan Desert Grassland		Conif. Forest/ Woodland/ Grassland
Spotted bat	Euderma maculatum	BLM Sensitive	X	Bat	Mixed Conifer/PJ Woodland/Chihuahuan Desert Scrub/Chihuahuan Desert Grassland/Riparian		Conif. Forest/ Woodland/ Desert/ Grassland
Western Yellow Bat	Lasiurus xanthinus	SEII	X	Bat	Wetland/Riparian/ Aquatic	Bootheel	Woodland/Aquatic
Yuma myotis	Myotis yumanensis	BLM Sensitive	X	Bat	Great Plains Grassland/Chihuahuan Desert Grassland/Mixed Conifer/PJ Woodland/Great Basin Desert Scrub		Grassland/ Conif Forest/ Woodland/ Desert
Abert's Towhee	Pipilo aberti	SEII	X	Bird	Mixed Conifer/Madrean Evergreen Woodland/ Wetland/Riparian/ Aquatic		Conif. Forest/ Woodland/ Aquatic
Arizona Grasshopper Sparrow	Ammodramus savannarum ammolegus	SEII	X	Bird	Chihuahuan Desert Grassland/Chihuahuan Desert Scrub	Bootheel	Desert/Grassland
Baird's sparrow	Ammodramus bairdii	BLM Sensitive	X	Bird	Chihuahuan Desert Grassland/Great Plains Grassland		Grassland/ Desert
Bell's Vireo	Vireo bellii	SEII	X	Bird	Wetland/Riparian/ Aquatic		Woodland/Aquatic
Black tern	Chlidonias niger	BLM Sensitive	X	Bird	Wetland/Riparian/Aquatic		Aquatic
Boreal Owl	Aegolius funereus	SEII	X	Bird	Mixed Conifer		Forest
Broad-billed Hummingbird	Cynanthus latirostris	SE II	X	Bird	Wetland/Riparian/ Aquatic	Bootheel	Woodland/Aquatic

Buff-collared Nightjar	Caprimulgus ridgwayi	SEI	X	Bird	Chihuahuan Desert Scrub	Bootheel	Desert
Common Ground Dove	Columbina passerina	SEI	X	Bird	Chihuahuan Desert Scrub/ Chihuahuan Desert Grassland/ Wetland/Riparian/ Aquatic		Desert/ Grassland/ Woodland/Aquatic
Common Black-hawk	Buteogallus anthracinus anthracinus	SEII	X	Bird	Wetland/Riparian/ Aquatic		Woodland/ Aquatic
Costa's Hummingbird	Calypte cosae	SEII	X	Bird	Madrean Evergreen Woodland	Bootheel	Woodland
Elegant Trogon	Trogon elegans	SEII	X	Bird	Mixed Conifer/Madrean Evergreen Woodland/ Wetland/Riparian/ Aquatic	Bootheel	Conif. Forest/ Woodland/ Aquatic
Ferruginous hawk	Buteo regalis	BLM Sensitive	X	Bird	Great Plains Grassland/Great Basin Grassland/Great Basin Desert Scrub/Chihuahuan Desert Grassland/Chiuhuahuan Desert Scrub/ PJ Woodland		Grassland/ Desert/ Woodland
Fulvous whistling duck	Dendrocygna bicolor	BLM Sensitive	X	Bird	Wetland/Riparian/Aquatic		Aquatic
Gila Woodpecker	Melanerpes uropygialis	SEII	X	Bird	Wetland/Riparian/ Aquatic		Woodland/Aquatic
Gould's Wild Turkey	Meleagris gallopavo mexicana	SEII	X	Bird	Mixed Conifer/Madrean Evergreen Woodland/PJ Woodland	Bootheel	Forest/Woodland
Gray Vireo	Vireo vicinior	SEII	X	Bird	PJ Woodland/Mt Scrub/Interior Chaparral		Woodland

Harlequin duck	Histrionicus histrionicus	BLM Sensitive	X	Bird	Wetland/Riparian/Aquatic		Aquatic
Lessert Prairie Chicken	Tympanuchus pallidicinctus	BLM Sensitive	X	Bird	Great Plains Grassland/Plains Sand Scrub		Grassland/ Woodland-Brushland
Loggerhead shrike	Lanius ludovicianus	BLM Sensitive	X	Bird	Great Basin Desert Scrub/Chiuahuan Desert Scrub/Great Plains Grassland/Riparian		Desert/ Grassland/ Woodland
Lucifer Hummingbird	Calothorax lucifer	SEII	X	Bird	Chihuahuan Desert Scrub/Madrean Evergreen Woodland		Desert/ Woodland
Neotropic Cormorant	Phalacrocorax basiianus	SEII	X	Bird	Wetland/Riparian/ Aquatic		Aquatic
Northern goshawk	Accipiter gentilis	BLM Sensitive	X	Bird	Mixed Conifer/Riparian		Conif. Forest/ Woodland
Northern gray hawk	Buteo nitidus maximus	BLM Sensitive	X	Bird	Chihuahuan Desert Grassland/Riparian	Bootheel	Grassland/ Woodland
Northern Beardless-tyrannulet	Camptostoma imberbe	SEI	X	Bird	Wetland/Riparian/ Aquatic	Bootheel	Woodland/ Aquatic
Thick-billed Kingbird	Tyrannus crassirostris	SEI	X	Bird	Wetland/Riparian/ Aquatic	Bootheel	Woodland/Aquatic
Varied Bunting	Passerina vesicolor	SEII	X	Bird	Chihuahuan Desert Scrub/ Wetland/Riparian/ Aquatic		Desert/ Woodland/Aquatic
Violet-Crowned Hummingbird	Amazilia violiceps	SEII	X	Bird	Wetland/Riparian/ Aquatic	Bootheel	Woodland/Aquatic
Western burrowing owl	Athene cunicularia hypugea	BLM Sensitive	X	Bird	Great Plains Grassland/Chihuahuan Desert Grasslands/Chihuahuan Desert Scrub/Great Basin Desert Scrub/ PJ Woodland/Montane Grassland	Often Associated with Prairie Dog Towns	Grassland/ Desert/ Woodland

White-faced ibis	Plegadis chihi	BLM Sensitive	X	Bird	Wetland/Riparian/Aquatic		Aquatic
White-eared Hummingbird	Hylocharis leucotis	SEII	X	Bird	Madrean Evergreen Woodland/ Wetland/Riparian/ Aquatic/ Mixed Conifer	Bootheel	Woodland/Aquatic/ Forest
Yellow-Eyed Junco	Junco phaeonotus	SEII	X	Bird	Mixed Conifer/PJ Woodland/Mtn Scrub/Madrean Evergreen Woodland		Forest/ Woodland
Sangre de Cristo peaclam	Pisidium sanguinichristi	BLM Sensitive	X	Bivalve	Wetland/Riparian/Aquatic	Endemic	Aquatic
Southwestern otter	Lutra canadensis sonorae	BLM Sensitive	X	Carnivore	Wetland/Riparian/Aquatic		Aquatic
Noel's amphipod	Gammarus desperatus	BLM Sensitive	X	Crustacean	Wetland/Riparian/Aquatic	Endemic	Aquatic
Millipede (no common name)	Toltecus chihuanus	BLM Sensitive	X	Diplopod	Unknown	Bernalillo Co.	Unknown
Bigscale Logperch	Percina macrolepida	SEI	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Blue sucker	Cycleptus elongatus	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic
Desert sucker	Catostomus clarki	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic
Flathead chub	Platygobio (=Hybopsis) gracilis	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic
Gila chub	Gila intermedia	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic
Gray Redhorse	Moxostoma congetum	SEII	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Greenthroat Darter	Etheostoma lepidum	SEII	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Longfin dace	Agosia chrysogaster	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic

Mexican Tetra	Astyanax mexicanus	SEII	X	Fish	Wetland/Riparian/ Aquatic		Aquatic
Plains minnow	Hybognathus placitus*	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic
Rio Grande shiner	Notropis jemezanus	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic
Roundtail chub	Gila robusta	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic
Sonora sucker	Catostomus insignis	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic
Speckled dace	Rhinichthys osculus (Gila drainage)	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic		Aquatic
Zuni bluehead sucker	Catostomus discobolus yarrowi	BLM Sensitive	X	Fish	Wetland/Riparian/Aquatic	Endemic	Aquatic
Cockerell's striate disc (snail)	Discus shemeki cockerelli	BLM Sensitive	X	Gastropod	Mixed Conifer		Conif. Forest/Aquatic
Cook's Peak woodlandsnail	Ashmunella macromphala	BLM Sensitive	X	Gastropod	Unknown	Endemic	Woodland?
Cornudas Mtns Land Snail	Ashmunella amblya cornudasensis	BLM Sensitive	X	Gastropod	Montane Scrub	Endemic	Woodland
Dona Ana talussnail	Sonorella todseni	BLM Sensitive	X	Gastropod	Interior Chaparral	Endemic	Woodland
Hacheta Grande woodlandsnail	Ashmunella hebardi	BLM Sensitive	X	Gastropod	PJ Woodland	Endemic/ Bootheel	Woodland
Pecos springsnail (Pyrg)	Fontelicella pecosensis = Pyrgulopsis pecosensis	BLM Sensitive	X	Gastropod	Wetland/Riparian/Aquatic		Aquatic
Animas minute moss beetle	Limnebius aridus	BLM Sensitive	X	Insect	Unknown	Bootheel	Woodland?
Anthony blister beetle	Lytta mirifica	BLM Sensitive	X	Insect	Unknown		Desert?
Arizona shrew	Sorex arizonae	BLM Sensitive	X	Insectivore	Mixed Conifer/Madrean Evergreen Woodland		Conif. Forest/ Woodland

Least Shrew	Cryptotis parva	SEII	X	Insectivore	Wetland/Riparian/ Aquatic		Woodland/Grassland/Aquatic
Acoma fleabane	Erigeron acomanus	BLM Sensitive	X	Plant	PJ Woodland		Woodland
Alamo beardtongue	Penstemon alamosensis	BLM Sensitive	X	Plant	Chihuahuan Desert Scrub, Chihuahuan Desert Grassland	Endemic	Desert/ Grassland
Aztec gilia	Gilia formosa	BLM Sensitive	X	Plant	Great Basin Desert Scrub		Desert
Bisti fleabane	Erigeron bistiensis	BLM Sensitive	X	Plant	Great Basin Desert Scrub	Endemic	Desert
Brack's Cactus	Sclerocactus cloveriae subsp. brackii	SE	X	Plant	PJ Woodland/ Great Basin Desert Scrub		Woodland/ Desert
Chiricahua mudwort	Limosella publiflora	BLM Sensitive	X	Plant	Wetland/Riparian/Aquatic		Aquatic
Cinder phacelia	Phacelia serrata	BLM Sensitive	X	Plant	PJ Woodland/Mixed Conifer Forest	substrate Specialist	Conif. Forest/ Woodland
Contra yerba	Pediomelum pentaphyllum	BLM Sensitive	X	Plant	Chihuahuan Desert Grassland	Bootheel	Grassland
Desert night-blooming cereus	Cereus greggii var. greggii	BLM Sensitive	X	Plant	Chihuahuan Desert Scrub		Desert
Duncan's cory cactus	Coryphantha duncanii	BLM Sensitive	X	Plant	Chihuhuahuan Desert Scrub	Restricted, substrate specialist	Desert
Duncans Pincushion Cactus	Escobaria duncanii	SE/ BLM Sensitive	X	Plant	Chihuahuan Desert Scrub		Desert
Dwarf milkweed	Asclepias uncialis var. uncialis	BLM Sensitive	X	Plant	Great Plains Grassland/Great Basin Grassland		Grassland
Fugate's blue-star	Amsonia fugatei	BLM Sensitive	X	Plant	Chihuahuan Desert Scrub		Desert
Glass Mountain coral-root = Shining Coral Root	Hexalectris nitida	BLM Sensitive	X	Plant	Madrean Evergreen Woodland		Woodland

Grama grass cactus	Pediocactus papyracanthus	BLM Sensitive	X	Plant	Chihuahuan Desert Grassland/PJ Woodland/GreatBasin Desert Grassland/Short Grass Steppe		Grassland/ Woodland-Scrubland/ Desert
Griffith's saltbush	Atriplex griffithsii	BLM Sensitive	X	Plant	Chihuahuan Desert Scrub		Desert
Guadalupe smooth aster	Aster laevis var. guadalupensis	BLM Sensitive	X	Plant	Madrean Evergreen Woodland/Riparian		Woodland
Gypsum scalebroom	Lepidospartum burgessii	BLM Sensitive	X	Plant	Chihuahuan Desert Scrub	Endemic	Desert
Gypsum hotspring aster	Machaeranthera gypsitherma	BLM Sensitive	X	Plant	Wetland/Riparian/Aquatic		Aquatic Emergent
Gypsum townsendia	Townsendia gypsophila	BLM Sensitive	X	Plant	PJ Woodland/Great Basin Desert Scrub	Endemic?	Woodland/ Desert
Knight's milk-vetch	Astragalus knightii	BLM Sensitive	X	Plant	PJ Woodland		Woodland
Limestone rosewood	Vauquelinia californica ssp. pauciflora	BLM Sensitive	X	Plant	Interior Chaparral	Bootheel	Woodland
Nodding rock-daisy	Perityle cernua	BLM Sensitive	X	Plant	Mountain Scrub		Woodland
Organ Mtn. Pincushion Cactus	Escobaria organensis	SE	X	Plant	PJ Woodland/Interior Chaparral		Woodland
Organ Mountain evening-primrose	Oenothera organensis	BLM Sensitive	X	Plant	Wetland/Riparian/Aquatic		Aquatic/ Emergent
Organ Mountain figwort	Scrophularia laevis	BLM Sensitive	X	Plant	Mixed Conifer/PJ Woodland	Endemic	Conif. Forest/ Woodland
Pinos Altos fameflower	Talinum humile	BLM Sensitive	X	Plant	PJ Woodland/Interior Chaparral		Woodland
Ripley milk-vetch	Astragalus ripleyi	BLM Sensitive	X	Plant	PJ Woodland/Mixed Conifer/Montane Scrub		Conif. Forest/ Woodland

Sand prickly pear	Opuntia arenaria	BLM Sensitive	X	Plant	Chihuahuan Desert Grassland	substrate specialist	Grassland
Sandhill goosefoot	Chenopodium cycloides	BLM Sensitive	X	Plant	Plains-Mesa Broadleaf Sand Scrub		Desert-Woodland-Grassland
Santa Fe cholla	Opuntia viridiflora	BLM Sensitive	X	Plant	PJ Woodland		Woodland
Scheer's Pincushion Cactus	Coryphantha Scheeri var. scheeri	SE	X	Plant	Chihuahuan Desert Scrub		Desert
Scheer's Pincushion Cactus	Coryphantha Scheeri var. scheeri	SE	X	Plant	Chihuahuan Desert Scrub, Chihuahuan Desert Grassland		Desert/ Grassland
Sivinski's fleabane	Erigeron sivinskii	BLM Sensitive	X	Plant	PJ Woodland	Endemic	Woodland
Slender spiderflower	Cleome multicaulis	BLM Sensitive	X	Plant	Wetland/Riparian/Aquatic- Chihuahuan Desert Lowland Swale Grassland		Aquatic Emergent/ Grassland
Spellenberg's groundsel	Senecio spellenbergii	BLM Sensitive	X	Plant	Great Plains Grassland		Grassland
Tharp's blue-star	Amsonia tharpii	BLM Sensitive	X	Plant	Chihuahuan Desert Scrub		Desert
Villard's pincushion cactus	Escobaria villardii	BLM Sensitive	X	Plant	Chihuahuan Desert Grassland	Endemic	Grassland
Wilcox Pincushion Cactus	Mammillaria wrightii var wilcoxii	SE	X	Plant	Chihuahuan Desert Grassland		Grassland
Wright's water-willow	Justicia wrightii	BLM Sensitive	X	Plant	Chihuahuan Desert Scrub	Restricted?	Desert
White-sided jackrabbit	Lepus callotis gaillardi	BLM Sensitive	X	Rabbit	Chihuahuan Desert Grassland/Chihuahuan Desert Scrub	Bootheel	Desert/ Grassland
Arid Land Ribbon Snake = Western Ribbon Snake	Thamnophis proximus	SEII	X	Reptile	Wetland/Riparian/ Aquatic		Aquatic

Blotched Water Snake = Plain Bellied Water Snake	Nerodia erythrogaster	SEI	X	Reptile	Wetland/Riparian/ Aquatic		Aquatic
Canyon (giant) spotted whiptail	Cnemidophorus burti	BLM Sensitive	X	Reptile	Madrean Evergreen Woodland/Riparian	Bootheel	Woodland
Dunes sagebrush lizard	Sceloporus arenicolus	BLM Sensitive	X	Reptile	Plains&Mesa Sandscrub	substrate specialist	Woodland-Brushland
Gray-checkered whiptail	Cnemidophorus dixoni	BLM Sensitive	X	Reptile	Chihuahuan Desert Grassland/Chihuahuan Desert Scrub	Bootheel	Desert
Mexican garter snake	Thamnophis eques	BLM Sensitive	X	Reptile	Wetland/Riparian/Aquatic		Aquatic/ Woodland
Mottled Rock Rattlesnake	Crotalus lepidus lepidus	SEII	X	Reptile	PJ Woodland/Mtn Scrub		Woodland
Narrowhead garter snake	Thamnophis rufipunctatus	BLM Sensitive	X	Reptile	Wetland/Riparian/Aquatic		Aquatic/ Woodland
Reticulate Gila Monster	Heloderma suspectum suspectum	SEI	X	Reptile	Chihuahuan Desert Scrub		Desert
Texas horned lizard	Phrynosoma cornutum	BLM Sensitive	X	Reptile	Great Plains Grassland/Chihuahuan Desert Scrub/Chihuahuan Desert Grassland/PJ Woodland/		Grassland/ Desert/ Woodland
Western River Cooter	Pseudemys gorzugi	SEII	X	Reptile	Aquatic		Aquatic
Arizona black-tailed prairie dog	Cynomys ludovicianus arizonensis	BLM Sensitive	X	Rodent	Chihuahuan Dessert Grassland/Great Plains Grassland		Grassland
Cebolleta southern pocket gopher	Thomomys umbrinus paquatae	BLM Sensitive	X	Rodent	PJ Woodland/Great Basin Desert Scrub		Woodland/ Desert
Desert pocket gopher	Geomys bursarius arenarius	BLM Sensitive	X	Rodent	Chihuahuan Desert Grassland/Chihuahuan Desert Scrub		Desert
Goat Peak pika	Ochotona princeps nigrescens	BLM Sensitive	X	Rodent	Rock Outcrop in Mixed Conifer		Conif. Forest

Gray-footed chipmunk	Tamias canipes	BLM Sensitive	X	Rodent	Mixed Conifer/PJ Woodland		Conif. Forest/ Woodland
Guadalupe southern pocket gopher	Thomomys umbrinus guadalupensis	BLM Sensitive	X	Rodent	PJ Woodland/Madrean Evergreen Woodland		Woodland
Mearns' southern pocket gopher	Thomomys umbrinus mearnsi	BLM Sensitive	X	Rodent	PJ Woodland/Chihuahuan Desert Grassland	Bootheel	Woodland/ Grassland
New Mexican jumping mouse	Zapus hudsonius luteus	BLM Sensitive	X	Rodent	Wetland/Riparian/Aquatic		Aquatic/ Woodland
Organ Mountains Colorado chipmunk	Tamias quadrivittatus australis	BLM Sensitive	X	Rodent	Mixed Conifer/PJ Woodland/Madrean Evergreen Woodland	Endemic	Conif. Forest/ Woodland
Pecos River muskrat	Ondatra zibethicus ripensis	BLM Sensitive	X	Rodent	Wetland/Riparian/Aquatic		Aquatic
Southern Pocket Gopher	Thomomys umbrinus emotus	SEII	X	Rodent	PJ Woodland/Madrean Evergreen Woodland/Mixed Conifer	Bootheel/Endemic	Forest/Woodland
White Sands woodrat	Neotoma micropus leucophaea	BLM Sensitive	X	Rodent	Chihuahuan Desert Grassland/ Chihuahuan Desert Scrub	Restricted	Grassland/ Desert
Yellow-nosed cotton rat	Sigmodon ochrognathus	BLM Sensitive	X	Rodent	Montane Scrub/PJ Woodland/Madrean Evergreen Woodland&Forest/ Chihuahuan Desert Grassland	Bootheel	Woodland/ Grassland
Desert Bighorn Sheep	Ovis canadensis mexicana	SEI	X	Ungulate	PJ Woodland/Chihuahuan Desert Scrub/Mtn Scrub/Interior Chaparral		Woodland/Desert

Note - Table is split purposely to allow sorting for analysis....Table is to be sorted by columns 3 and 1 to place in Status and Species order then joined.

Codes:
BLM Senesitive = Species designated by BLM as sensistive. By policy these include FWS species of concern occurring on Public Land.
SOC = Species of Concern (Former Category 2 Candidates)
SE = State Endangered Plants
SEI = State Endangered Animals Group 1 (Endangered)
SEII = State Endangered Animals Group 2 (Threatened)
X = Potentially Present on BLM Lands

Final Report

APPENDIX D

FINANCIAL THRESHOLD ANALYSIS

Of the

IMPACTS OF THE PROPOSED BLM STANDARDS & GUIDELINES FOR GRAZING

Submitted to:

Cooperating Counties & New Mexico State Team

Prepared by:

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Southwest Center for Resource Analysis
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FINANCIAL THRESHOLD ANALYSIS
Of the
IMPACTS OF THE PROPOSED
BLM STANDARDS & GUIDELINES FOR GRAZING

A. PURPOSE

The purpose of this report is to determine the current financial conditions of BLM dependent ranches that may be affected by impacts of the proposed BLM Standards and Guidelines for Grazing, Chapter 3 of the Environmental Impact Statement (EIS), Affected Environment. These conditions are then used as a baseline for comparison of the impacts of the three proposed alternatives in Chapter 4 of the EIS, Environmental Consequences.

B. METHODOLOGY

The analysis in this report is based on:

Tables and other information describing typical ranches by size and class in the five ranching areas in New Mexico, as published in the annual report, Range Livestock Cost and Return Estimates for New Mexico, by L. Allen Torell and Jerry M. Hawkes, of the Agricultural Experiment Station at New Mexico State University,

Ten-year average budgets of typical ranches by size and class in the five ranching areas in New Mexico as developed specifically for this EIS, by John Fowler, Ph.D., and Nick Ashcroft of New Mexico State University, and

Tables of cost and revenues changes for each typical ranch by size and class in the five ranching areas in New Mexico, as affected by each of the alternatives, as developed specifically for this EIS, by John Fowler, Ph.D., and Nick Ashcroft of New Mexico State University.

Using the above sources of information, each typical ranch was analyzed to determine in the Affected Environment:

Percentage of dependency on BLM grazing, and other lands, and

Financial thresholds for production, overhead and owner salary in terms of AUMs.

And in Environmental Consequences:

Impacts on financial thresholds by each of the three alternatives (plus the No-Action alternative), as well as both a 20 percent reduction in BLM AUMs under each of the alternatives, and the cost to the rancher of paying the cost of required improvements under each of the alternatives; and

Affects on current standards of living under each of the alternatives.

C. ASSUMPTIONS

Rates of revenue/AUM were held constant at all levels of production prior to management changes.

Variable cost functions for varying levels of production prior to management changes varied with changes in the number of AUMs, and changes in the amount of land grazed. As a result, the slope of the variable cost function (and subsequently the total cost function) was different for each type of grazing land, with abrupt increases/decreases at the points where they intersected.

None of the non-BLM grazing lands have had, or will have, management changes that will affect production.

BLM AUMs are the marginal units (last ones produced) for these typical ranches.

D. DEFINITION OF TERMS:

Variable Production Costs: These are expenses that vary with production levels, and consist of leases, grazing fees, supplemental feed, livestock expenses, hired labor, and other miscellaneous ranch expenses. The cost driver for some of the expenses is the actual number of AUMs (livestock) in production (i.e. grazing fees, feed, per head taxes, etc.). The cost driver for some of the other expenses (i.e. fuel and repairs, maintenance, etc.) is the amount and type of land being used for production and the costs associated with that land independent of the number of AUMs at any given time period. For this reason, some costs decrease/increase directly with the number of AUMs, others decrease/increase directly with the amount and type of land being used.

Fixed or Overhead Costs: These are expenses that do not vary with the level of production. They include electricity, telephone, butane, oil, gas and wood products for heating, insurance, depreciation, and taxes on land, dwellings, and equipment. These costs must be paid even if production is reduced to zero.

Total Costs: These are the sum of Variable Production Costs and Fixed Overhead Costs (for Small and Extra-Small ranches), and include Owner's Salary (for Medium, Large, and Extra-Large ranches).

Gross Revenues: These are derived from the total sales of livestock and/or feed program payments.

Gross Margin: This is the amount of gross revenues (ranch income) remaining after all variable production costs have been paid. In order for a business to remain in operation, this number must be positive.

Owner Salary: This is the value of the owner's management and labor for the given typical ranch. It varies by size and ranching area.

Financial Threshold for Production (FTPd): This is the minimum number of AUMs required for the given typical ranch to meet all variable production costs. It is determined by graphing the gross revenue and variable production cost functions to locate the initial point of intersection.

Financial Threshold for Risk (FTR): This is the minimum number of AUMs required for the given typical ranch to meet all variable production costs plus all fixed overhead costs. For extra-small and small ranches, this does not include much, if any, owner salary, as most ranches in these size classes are dependent on significant off-ranch family income, either part-time or full-time. For medium, large and extra-large ranches, dependency on off-ranch income to pay the owner's salary is less likely due to the increased amount of time required by the owner to manage ranches of these sizes. Therefore, the amount of the owner's salary is not included in the FTR for extra-small and small ranches, but is included in the FTR for medium, large and extra-large ranches. This threshold is determined by either of the following methods: 1) graphing the gross revenue and total cost functions to locate the point(s) of intersection, or 2) using the following formulae at different levels of production:

Gross revenue/AUM (minus)
Variable Production Costs/AUM = Gross margin/AUM

$$\frac{\text{Total Fixed Overhead Costs}^{1}}{\text{Gross Margin/AUM}} = \text{Financial Threshold for Risk in AUMs}$$

BLM permit: A permit for grazing on federal land issued by the Bureau of Land Management, for a given number of AUMs on a given allotment, paid for by a determined amount per AUM for the actual number of AUMs grazed.

USFS permit: A permit for grazing on federal land issued by the United States Forest Service, for a given number of AUMs on a given allotment, paid for by a determined amount per AUM for the actual number of AUMs grazed.

State Lease: A permit for grazing on New Mexico State Trust Land issued by the New Mexico State Land Office, on a given allotment for a given number of acres. Payment is based on the amount of an accepted bid by the permitee for the allotment, and is independent of the actual number of AUMs grazed.

Maximum production capacity: An estimated maximum number of AUMs based on the maximum herd size for the given size and type of ranch and its current available resources. Operation beyond this point would require shifting to the next higher size classification, and a change in all revenue and cost functions.

New Mexico Ranching Areas: The analysis for this report includes five ranching areas in New Mexico. These areas were determined by the sources of information described previously. The following is a summary of the typical ranches for each area.

AFFECTED ENVIRONMENT

1. Central Mountain Region

a. Extra-Small Cow/Calf Ranch

The typical ranch in this category has 53 head of livestock, 40 of which are brood cows, for a total of 636 AUMs. Approximately 27 percent of the ranch grazing is a BLM permit, most of the remainder is a USFS permit. At this level of production, the revenues from ranching pay all of the variable production costs and about one-half of the fixed overhead costs. The remainder of the fixed overhead costs, approximately $6,300, is paid for by off-ranch income.

Based on the ten-year-average budget for this typical ranch, the FTPd is approximately 250 AUMs, well within the current production level of the ranch. The FTR is not achieved until approximately 1,430 AUMs, well beyond the potential maximum production capacity of the ranch (assuming a maximum capacity of 900 to 950 AUMs), and well beyond the current level of production of this ranch.

This ranch can not hope to pay all of its fixed overhead costs or any of its owner salary costs from ranching revenues, without expanding to a larger ranch size. But, as long as it does pay a portion of fixed overhead costs, it is financially better off to remain in operation. Its most profitable level is at or above current production levels.

b. Small Cow/Calf Ranch

[1] Includes owner's salary for medium, large, and extra-large ranches.

This typical ranch has 133 head of livestock, 100 of which are brood cows, for a total of 1,596 AUMs. Approximately 12 percent of the ranch grazing is a BLM permit, most of the remainder is a USFS permit. At this level of production, the revenues from ranching pay all of the variable production costs, and all of the fixed overhead costs, with a residual return to investment of $420 towards the owner's salary or other family needs.

Based on the ten-year-average budget, the FTPd is approximately 510 AUMs, well within the current production level of the ranch. The FTR is not achieved until approximately 1,550 AUMs, which is well within the potential maximum production capacity of the ranch (assuming a maximum capacity of between 1600 and 1700 AUMs), and within the current level of production.

This ranch can not hope to pay its owner a full salary without expanding to a larger ranch size. But as long as it does pay at least a portion of the fixed overhead costs, it is financially better off remaining in production, as these costs must be paid even if production is zero. Its most profitable levels are at or above current levels of production.

c. Medium Cow/Calf Ranch

This typical ranch has 284 head of livestock, 225 of which are brood cows, for a total of 3,408 AUMs. Approximately 21 percent of the ranch grazing is a BLM permit, 16 percent is a USFS permit, 13 percent is a State lease, and the remaining 50 percent is private grazing. At this level of production, the revenues from ranching pay all of the variable production costs, all of the fixed overhead costs, all of the owner's salary, and has a residual return to investment of approximately $4,100.

Based on the ten-year-average budget, the FTPd is approximately 375 AUMs, well within the current production level of the ranch. The FTR is not achieved until approximately 3,100 AUMs, which is within the current level of production and well within the potential maximum production capacity of the ranch (assuming a maximum production capacity of 4,500 to 4,650 AUMs), but occurs only with the inclusion of the BLM permit. At lower levels of production that exclude the BLM grazing, all variable production costs can be covered, but there is a decreasing ability to pay the owner's salary, and in some cases, none of the owner's salary is paid. At levels below 1,875 AUMs, the ranch is no longer paying all fixed overhead costs (exclusive of the owner's salary). This is significant, in that a medium-sized ranch requires the full-time attention of the owner, with little or no opportunity for off-ranch income pursuits by the owner.

This ranch would, under normal circumstances, provide for the owner's salary as well as a residual return to investment. Its most profitable level of production is at current levels or above.

d. Large Cow/Calf Ranch

This typical ranch has 485 head of livestock, 385 of which are brood cows, for a total of 5,826 AUMs. Approximately 20 percent of the ranch grazing is a BLM permit, 15 percent is a USFS permit, 13 percent is a State lease, and the remaining 52 percent is private grazing. At this level of production, the revenues from ranching pay all of the variable production costs, all of the fixed overhead costs, all of the owner's salary, and has a residual return to investment of approximately $6,600.

Based on the ten-year-average budget, the FTPd is approximately 750 AUMs, well within the current production level of the ranch. The FTR is not achieved until 5,300 AUMs, which is within the current level of production and well within the potential maximum production capacity of the ranch (assuming a maximum production capacity of 7,250 to 7,560 AUMs), but occurs <u>only</u> with the inclusion of the BLM permit. At lower levels of production that exclude the BLM grazing, all variable production costs can be covered, but there is a decreasing ability to pay the owner's salary, and in some cases, none of the owner's salary is paid. As levels of

production continue to decrease, the ability to pay fixed overhead costs decreases. At levels below 2,950 AUMs, the ranch is no longer able to pay all fixed overhead costs (exclusive of the owner's salary). This is significant, in that a large ranch requires the full-time attention of the owner, with little or no opportunity for off-ranch income pursuits by the owner.

This ranch would, under normal circumstances, provide for the owner's salary as well as a residual return to investment. Its most profitable level of production is at current levels or above.

2. Northeast Region

This region was not analyzed due to the small number of BLM permits, none of which would be affected by management changes proposed in this EIS.

3. Northwest Region

a. Extra-Small Cow/Calf Ranch

The typical ranch in this category has 20 – 21 head of livestock, 16 of which are brood cows, for a total of 249 AUMs. Approximately 68 percent of the ranch grazing is a BLM permit, most of the remainder is a USFS permit. At this level of production, the revenues from ranching pay all of the variable production costs and about 84 percent of the fixed overhead costs. The remainder of the fixed overhead costs, approximately $380, is paid for by off-ranch income.

Based on the ten-year-average budget for this typical ranch, the FTPd is achieved at two different production levels. The first level, which includes private grazing and the USFS permit, is achieved at 10 AUMs and continues until the BLM permit is added, at 79 AUMs. The ranch then falls below the FTPd until a production level of 90 AUMs is achieved, well within the current production level of the ranch. The FTR is not achieved until approximately 295 AUMs, well within the potential maximum production capacity of the ranch (assuming a maximum capacity of 900 to 950 AUMs), but beyond the current level of production.

This ranch could potentially expand from its current level of production to pay all of its fixed overhead costs, and possibly even part or all of its owner salary costs (if resources are available) without expanding to a larger ranch size. But, at its current level of production, as long as it does pay a portion of fixed overhead costs, it is better off, financially, to remain in operation. Its most profitable level is at or above current production levels.

b. Small Cow/Calf Ranch

This typical ranch has 109 head of livestock, 83 of which are brood cows, for a total of 1,309 AUMs. Approximately 47 percent of the ranch grazing is a BLM permit, most of the remainder is a USFS permit. At this level of production, the revenues from ranching pay all of the variable production costs, and about 61 percent of the fixed overhead costs. The remainder of the fixed overhead costs, approximately $4,940, is paid for by off-ranch income.

Based on the ten-year-average budget for this typical ranch, the FTPd is achieved at two different levels of production. The first level, which includes private grazing and the USFS permit, is achieved at 345 AUMs and continues until the BLM permit is added, at 697 AUMs. The ranch then falls below the FTPd until a production level of 800 AUMs is achieved, well within the current production level of the ranch. The FTR is not achieved until 2,151 AUMs, well beyond the current level of production as well as the potential maximum production capacity of the ranch (assuming a maximum capacity of between 1,600 and 1,700 AUMs).

This ranch can not hope to pay all of its fixed overhead costs, or any portion of its owner salary costs, without

expanding to a larger ranch size. But as long as it does pay at least a portion of the fixed overhead costs, it is financially better off remaining in production, as these costs must be paid even if production is reduced to zero. Its most profitable levels are at or above current levels of production.

c. Medium Cow/Calf Ranch

This typical ranch has 301 head of livestock, 223 of which are brood cows, for a total of 3,616 AUMs. Approximately 26 percent of the ranch grazing is a BLM permit, 26 percent is a USFS permit, 25 percent is a State lease, and the remaining 23 percent is private land grazing. At this level of production, the revenues from ranching pay all of the variable production costs, all of the fixed overhead costs, and approximately 61 percent of the owner salary costs. The remainder of the owner's salary, approximately $6,210 is paid from off-ranch income.

Based on the ten-year-average budget, the FTPd is achieved at all levels of production above 100 AUMs, well within the current production level of the ranch. The FTR is not achieved until 4,284 AUMs, which is well within the potential maximum production capacity of the ranch (assuming a maximum production capacity of 4,500 to 4,650 AUMs), but beyond the current level of production.

This ranch could potentially expand to provide for the full owner's salary, as well as a residual return to investment (if resources are available) without expanding to a larger ranch size. But, at its current level of production, as long as it does pay a portion of fixed costs, it is financially better to remain in production. Its most profitable level of production is at current levels or above.

d. Extra-Large Cow/Calf Ranch

This typical ranch has 657 head of livestock, 501 of which are brood cows, for a total of 7,880 AUMs. Approximately 23 percent of the ranch grazing is a BLM permit, 23 percent is a USFS permit, 18 percent is a State lease, and the remaining 36 percent is private land grazing. At this level of production, the revenues from ranching pay all variable production costs, all of the fixed overhead costs, and all of the owner salary costs, with a residual return to investment of approximately $10,370.

Based on the ten-year-average budget, the FTPd is achieved at all levels of production above 1,000 AUMs, well within the current production level of the ranch. The FTR is not achieved until 6,739 AUMs, which is within the current production level of the ranch and well within the potential maximum production capacity of the ranch (assuming a maximum capacity of 19,000 to 20,000 AUMs), but occurs <u>only</u> with the inclusion of the BLM permit. At lower levels of production that exclude the BLM grazing, all variable production costs can be covered, but there is a decreasing ability to pay the owner's salary, and at some levels, none of the owner's salary is paid. As levels of production continue to decrease, the ability to pay fixed overhead costs decreases as well. At production levels below 3,600 AUMs, the ranch is no longer able to pay all fixed overhead costs (exclusive of the owner's salary).

This ranch would, under normal circumstances, provide for the owner's salary, as well as a residual return to investment. Its most profitable level of production is at current levels or above.

4. Southeast Region

a. Extra-Small Cow/Calf Ranch

The typical ranch in this category has 53 head of livestock, 40 of which are brood cows, for a total of 636 AUMs. Approximately 45 percent of the ranch grazing is a BLM permit, 30 percent is a State lease, and the remaining 25 percent is private land grazing. At this level of production, the revenues from ranching pay all of the variable production costs, and about 74 percent of the fixed overhead costs. The remainder of the fixed overhead costs, approximately $2,910, is paid for by off-ranch income.

Based on the ten-year-average budget for this typical ranch, the FTPd is achieved at all levels of production above 40 AUMs, well within the current production level of the ranch. The FTR is not achieved until 856 AUMs, which is within the potential maximum production capacity of the ranch (assuming a maximum capacity of 900 to 950 AUMs), but beyond the current level of production.

This ranch could potentially expand from its current level of production to pay all of its fixed overhead costs, and possibly even part of its owner salary costs (if resources are available), without expanding to a larger ranch size. But, at its current level of production, as long as it does pay a portion of fixed overhead costs, it is financially better off to remain in operation. Its most profitable level of production is at current levels or above.

b. Small Cow/Calf Ranch

This typical ranch has 102 head of livestock, 72 of which are brood cows, for a total of 1,221 AUMs. Approximately 58 percent of the ranch is a BLM permit, 23 percent is a State lease, and the remaining 19 percent is private land grazing. At this level of production, the revenues from ranching pay all of the variable production costs, and about 75 percent of the fixed overhead costs. The remainder of the fixed overhead costs, approximately $5,530, is paid for by off-ranch income.

Based on the ten-year-average budget for this typical ranch, the FTPd is achieved at all levels of production above 40 AUMs, well within the current production level of the ranch. The second threshold, the FTR, is not achieved until approximately 1,637 AUMs, which is within the potential maximum capacity of the ranch (assuming a maximum capacity of between 1,600 and 1,700 AUMs), but beyond the current level of production.

This ranch could expand to pay all of its fixed overhead costs and possibly a portion of its owner's salary (if resources were available), but could not hope to pay its owner a full salary without expanding to a larger ranch size. However, at its current level of production, as long as it pays at least a portion of fixed overhead costs, it is better off, financially, to remain in operation. Its most profitable level is at or above the current level of production.

c. Medium Cow/Calf Ranch

This typical ranch has 260 head of livestock, 185 of which are brood cows, for a total of 3,124 AUMs. Approximately 45 percent of the ranch grazing is a BLM permit, 31 percent is a State lease, and the remaining 24 percent is private land grazing. At this level of production, the revenues from ranching pay all of the variable production costs, all of the fixed overhead costs, and all of the owner salary costs, with a residual return to investment of approximately $8,480.

Based on the ten-year-average budget, the FTPd is achieved at all levels of production above 130 AUMs, well within the current production level of the ranch. The FTR is not achieved until 2,491 AUMs, which is within the current level of production, and well within the potential maximum production capacity of the ranch (assuming a maximum capacity of 4,500 to 4,650 AUMs), but occurs only with the inclusion of the BLM permit. At lower levels of production that exclude the BLM permit, all variable production costs can be covered, but only a portion of the owner's salary is paid. As levels of production continue to decrease, the ability to pay fixed overhead costs also decreases. At levels below 1,300 AUMs, the ranch is no longer able to pay all fixed costs (exclusive of the owner's salary).

Under normal circumstances, this ranch would provide for the owner's salary, as well as a residual return to investment. Its most profitable level of production is at or above the current level.

d. Large Cow/Calf Ranch

This typical ranch has 473 head of livestock, 342 of which are brood cows, for a total of 5,671 AUMs. Approximately 45 percent of the ranch grazing is a BLM permit, 30 percent is a State lease, and the remaining 25 percent is private land grazing. At this level of production, the revenues from ranching pay all variable production costs, all fixed overhead costs, and all of the owner salary costs, with a residual return to investment of about $32,980.

Based on the ten-year-average budget, the FTPd is achieved at all levels of production above 50 AUMs, well within the current production level of the ranch. The FTR is not achieved until 3,231 AUMs, which is within the current level of production, and well within the potential maximum production capacity of the ranch (assuming a maximum capacity of 7,250 to 7,560 AUMs), and occurs only with the inclusion of the BLM permit. At lower levels of production that exclude the BLM grazing, all variable costs can be covered, but there is a decreasing ability to pay the owner's salary, and at some levels, none of the owner's salary is paid. As levels of production continue to decrease, the ability to pay fixed overhead costs decreases as well. At production levels below 1,800 AUMs, the ranch is no longer able to pay all fixed overhead costs (exclusive of the owner's salary).

This ranch would, under normal circumstances, provide for the owner's salary, as well as a residual return to investment. Its most profitable level of production is at current levels or above.

e. Extra-Large Cow/Calf Ranch

This typical ranch has 741 head of livestock, 537 of which are brood cows, for a total of 8,895 AUMs. Approximately 45 percent of the ranch grazing is a BLM permit, 30 percent is a State lease, and the remaining 25 percent is private land grazing. At this level of production, the revenues from ranching pay all of the variable production costs, all of the fixed overhead costs, and all of the owner salary costs, with a residual return to investment of approximately $60,550.

Based on the ten-year-average budget, the FTPd is achieved at all levels of production above 100 AUMs, well within the current level of production. The FTR is achieved at two levels of production. The first occurs at 4,345 AUMs, assuming only the private land and State lease are in production, and continues until the BLM permit is added at 4,894 AUMs. At this level, the ranch falls below the FTR until 5,600 AUMs are in production, which is within the current level of production, and well within the potential maximum production capacity of the ranch (assuming a maximum capacity of 19,000 to 20,000 AUMs). This is the only BLM dependent ranch category in New Mexico that can achieve full profitability without the BLM permit.

This ranch would under normal circumstances, provide for the owner's salary, as well as a residual return to investment. As mentioned previously, this is the only ranch in this analysis that can achieve profitability without the BLM permit.

5. Southwest Region

a. Extra-Small Cow/Calf Ranch

The typical ranch in this category has 21 head of livestock, 16 of which are brood cows, for a total of 259 AUMs. Approximately 63 percent of the ranch is a BLM permit, 18.5 percent is a New Mexico State Trust Land Lease, and the remaining 18.5 percent is private grazing.

Based on the sources of information, this typical ranch category 10-year-budget had an extremely large feed program payment. While other ranches in the area receive feed program payments of $.47 to $.65 per AUM, this

category received $10.08 per AUM in the source analysis. However, it is possible in the future that this typical ranch may receive lower payments consistent with the other ranches in the area. For purposes of this analysis, the feed program payment was adjusted to $.47 per AUM.

At the current level of production, the revenues from ranching pay all of the variable production costs, and about 80 percent of the fixed overhead costs. The remainder of the fixed overhead costs, approximately $520, is paid by off-ranch income.

Based on the ten-year-average budget for this typical ranch (with the adjustment mentioned above), the FTPd is approximately 12 AUMs, well within the current production level of the ranch. The FTR is approximately 325 AUMs, above the current level of production, but within the potential maximum production capacity of the ranch (assuming a maximum capacity of 900 to 950 AUMs).

This ranch could expand to pay all of its fixed overhead costs and possibly a portion of its owner's salary from ranching revenues (if resources are available). However, at the current level of production, as long as it pays a portion of fixed overhead costs, it is better off, financially, to remain in operation. Its most profitable level is at or above the current production level.

b. Small Cow/Calf Ranch

This typical ranch has 100 head of livestock, 76 of which are brood cows, for a total of 1204 AUMs. Approximately 62 percent of the ranch grazing is a BLM permit, 26 percent is a State lease, and the remaining 12 percent is private grazing. At this level of production, the revenues from ranching pay all of the variable production costs, and about 75 percent of the fixed overhead costs. The remaining $3,100 of overhead costs is paid by off-ranch income.

Based on the ten-year-average budget, the FTPd occurs at three different levels of production for this ranch. The first level occurs at approximately 35 AUMs, assuming only the private grazing is in production. When the State lease is added, at 146 AUMs, the ranch drops below the FTPd until the level of 260 AUMs is in production. When the BLM permit is added, at 460 AUMs, the ranch again drops below the FTPd until the level of 650 AUMs is in production, which is within the current level of production. The second threshold, the FTR, is not achieved until approximately 1625 AUMs are in production, which is beyond the current level of production for this ranch, but within the potential maximum production capacity of the ranch (assuming a maximum capacity of between 1600 and 1700 AUMs).

This ranch could expand (if resources are available) to pay all of its fixed overhead costs and possibly a portion of its owner's salary, but could not hope to pay its owner a full salary without expanding to a larger ranch size. However, at the current level of production, as long as it pays a portion of fixed overhead costs, it is better off, financially, to remain in operation. Its most profitable level is at or above the current level of production.

c. Medium Cow/Calf Ranch

This typical ranch has 231 head of livestock, 182 of which are brood cows, for a total of 2,777 AUMs. Approximately 64 percent of the ranch grazing is a BLM permit, 27 percent is a State lease, and the remaining 9 percent is private grazing. At this level of production, the revenues from ranching pay all of the variable production costs, all of the fixed overhead costs, and about 50 percent of the owner's salary.

Based on the ten-year-average budget, the FTPd occurs at two different levels of production for this ranch. The first level occurs at approximately 25 AUMs, assuming only the private grazing is in production. When the State lease is added, at 246 AUMs, the ranch drops below the FTPd until approximately 450 AUMs are in

production. The ranch maintains the FTPd at all levels of production above 450 AUMs, including the BLM permit, which is within the current level of production. The second threshold, the FTR is not achieved until approximately 3,580 AUMs are in production, which is beyond the current level of production, but within the potential maximum production capacity of the ranch (assuming a maximum capacity of 4,500 to 4,650 AUMs). At lower levels of production that exclude the BLM grazing permit, all variable production costs can be covered, but there is a decreasing ability to pay the owner's salary, and in some cases, none of the owner's salary is paid. As levels of production continue to decrease, the ability to pay fixed overhead costs decreases. At levels below 2225 AUMs, the ranch is no longer paying all fixed overhead costs (exclusive of the owner's salary).

This ranch could expand to pay all of its owner's salary, and possibly earn a residual return to investment (if resources are available). The most profitable level of production for this ranch is at the current level or above.

d. Large Cow/Calf Ranch

This typical ranch has 425 head of livestock, 235 of which are brood cows, for a total of 5,103 AUMs. Approximately 62 percent of the ranch grazing is a BLM permit, 26 percent is a State lease, and the remaining 12 percent is private grazing. At this level of production, the revenues from ranching pay all of the variable production costs, all of the fixed overhead costs, and about 74 percent of the owner's salary.

Based on the ten-year-average budget, the FTPd is achieved at three different levels of production. The first level occurs at approximately 15 AUMs, assuming only the private grazing is in production. When the State lease is added, at 597, the ranch drops below the FTPd until approximately 1,100 AUMs are in production. When the BLM permit is added at 1,922 AUMs, the ranch again drops below the FTPd until approximately 2,520 AUMs are in production. The ranch maintains the FTPd at all levels above 2520 AUMs, which is within the current level of production. The second threshold, the FTR, is not achieved until approximately 5,500 AUMs are in production, which is beyond the current level of production, but well within the potential maximum production capacity of the ranch (assuming a maximum capacity of 7250 to 7560 AUMs). At lower levels of production that exclude the BLM grazing, all variable production costs can be covered, but there is a decreasing ability to pay the owner's salary, and in some cases, none of the owner's salary is paid. As levels of production continue to decrease, the ability to pay fixed overhead costs decreases. At levels below 4,275 AUMs, the ranch is no longer paying all fixed overhead costs (exclusive of the owner's salary).

This ranch could expand to pay all of its owner's salary, and possibly earn a residual return to investment (if resources are available). The most profitable level of production for this ranch is at the current level or above.

e. Extra-Large Cow/Calf Ranch

This typical ranch has 1,264 head of livestock, 995 of which are brood cows, for a total of 15,166 AUMs. Approximately 62 percent of the ranch grazing is a BLM permit, 10 percent is a State lease, and the remaining 28 percent is private grazing. At this level of production, the revenues from ranching pay all of the variable production costs, all of the fixed overhead costs, and approximately 87 percent of the owner's salary.

Based on the ten-year-average budget, the FTPd is achieved at two different levels of production. The first level occurs at approximately 1,000 AUMs, assuming only the private grazing is in production. The ranch continues above the FTPd with the inclusion of the State lease. However, when the BLM permit is added, at 5,712 AUMs, the ranch drops below the FTPd until approximately 7,130 AUMs are in production. The ranch maintains the FTPd at all levels above 7,130 AUMs, which is within the current level of production. The second threshold, the FTR, is not achieved until approximately 15,630 AUMs are in production, which is beyond the current level of production, but well within the potential maximum production capacity of the ranch (assuming a maximum capacity of 19,000 to 20,000 AUMs). At lower levels of production that exclude the BLM permit, all variable

production costs can be covered, but none of the owner's salary is paid, and only a portion of the fixed overhead costs (excluding the owner's salary) is paid. This is significant, in that an extra-large ranch requires the full time attention of the owner, with little or no opportunity for off-ranch income pursuits by the owner.

This ranch could expand to pay all of its owner's salary, and possibly earn a residual return to investment (if resources are available). The most profitable level of production for this ranch is at the current level or above.

ENVIRONMENTAL CONSEQUENCES

A NO ACTION ALTERNATIVE

1 Central Mountain Region

For detailed information on this section, refer to Table 1 in Section III of this report.

a. Extra-Small Cow/Calf Ranch

Based on the sources of information, before management changes, this typical ranch meets the FTPd, but not the FTR. This typical ranch pays for all of the variable production costs, and half of the fixed overhead costs. Off-ranch income pays the other half of fixed overhead costs, about $6,300. This ranch cannot increase production enough to pay all fixed overhead costs without expanding to a larger ranch size.

b. Small Cow/Calf Ranch

Based on the sources of information, before any management changes, this typical ranch meets both the FTPd and the FTR. However, if resources are available, it could increase production to meet the FTR. This typical ranch could pay all variable production costs and all fixed overhead costs, with a $420 residual return to investment to pay towards the owner's salary.

c. Medium Cow/Calf Ranch

Based on the sources of information, before any management changes, this typical ranch meets both the FTPd and the FTR. This typical ranch pays for all the variable production costs, all of the fixed overhead costs, all of the owner's salary, and has a residual return to investment of about $4,100.

d. Large Cow/Calf Ranch

Based on the sources of information, before any management changes, this typical ranch meets both the FTPd and the FTR. This typical ranch pays for all of the variable production costs, all of the fixed overhead costs, all of the owner's salary, and has a residual return to investment of about $6,600.

e. Conclusion

Under this alternative, all affected ranches in the four typical ranch size categories would continue to meet the FTPd. Three of the typical ranch sizes (small, medium, and large) would also continue to meet the FTR. Local governments and agencies would continue to receive revenues from these ranch operations as described under Affected Environment, at their current rates.

2 Northeast Region

This region was not analyzed due to the small number of BLM permits, none of which would be affected by management changes proposed in this EIS.

3 Northwest Region

For detailed information on this section, refer to Table 2 in Section III of this report.

a. Extra-Small Cow/Calf Ranch

Based on the sources of information, before management changes, this typical ranch meets the FTPd, but not the FTR. However, if resources are available, it could increase production to meet the FTR. This ranch currently pays for all of the variable production costs and 84 percent of the fixed overhead costs. Off-ranch imcome pays the other 16 percent of fixed overhead costs, about $380.

b. Small Cow/Calf Ranch

Before management changes, this typical ranch meets the FTPd, but not the FTR. This ranch currently pays for all of the variable production costs and 61 percent of the fixed overhead costs. Off-ranch income pays the other 39 percent of fixed overhead costs, about $4,940. This ranch cannot increase production enough to pay all fixed overhead costs without expanding to a larger ranch size.

c. Medium Cow/Calf Ranch

Before any management changes, this typical ranch meets the FTPd, but not the FTR. However, if resources are available, it could increase production to meet the FTR. This ranch currently pays for all of the variable production costs, all of the fixed overhead costs, and 61 percent of the owner's salary. Off-ranch income pays the other 39 percent of the owner's salary, about $6,210.

d. Extra-Large Cow/Calf Ranch

Before any management changes, this typical ranch meets the FTPd and the FTR. This typical ranch currently pays for all of the variable production costs, all of the fixed overhead costs, all of the owner's salary, and has a residual return to investment of about $10,370.

e. Conclusion

Under this alternative, all affected ranches in the four typical ranch size categories would continue to meet the FTPd. One of the typical ranch sizes (extra-large) would also continue to meet the FTR. Local governments and agencies would continue to receive revenues from these ranch operations as described under Affected Environment, at their current rates.

4 Southeast Region

For detailed information on this section, refer to Table 3 in Section III of this report.

a. Extra-Small Cow/Calf Ranch

Based on the sources of information, before management changes, this typical ranch meets the FTPd, but not the FTR. However, if resources are available, it could increase production to meet the FTR. This typical ranch currently pays all of the variable production costs, and 74 percent of the fixed overhead costs. Off-ranch income pays the other 26 percent of fixed overhead costs, about $2,910.

b. Small Cow/Calf Ranch

Before any management changes, this typical ranch meets the FTPd, but not the FTR. However, if resources are available, it could increase production to meet the FTR. This typical ranch currently pays all of the variable production costs, and 75 percent of the fixed overhead costs, about $5,530.

c. Medium Cow/Calf Ranch

Before any management changes, this typical ranch meets the FTPd and the FTR. This ranch currently pays for all of the variable production costs, all of the fixed overhead costs, and all of the owner's salary, with a residual return to investment of about $8,480.

d. Large Cow/Calf Ranch

Before any management changes, this typical ranch meets both the FTPd and the FTR. This ranch currently pays for all of the variable production costs, all of the fixed overhead costs, and all of the owner salary costs, with a residual return to investment of about $32,980.

e. Extra-Large Cow/Calf Ranch

Before any management changes, this typical ranch meets both the FTPd and the FTR. This ranch currently pays for all of the variable production costs, all of the fixed overhead costs, and all of the owner salary costs, with a residual return to investment of about $60,550.

f. Conclusion

Under this alternative, all affected ranches in the five typical ranch size categories would continue to meet the FTPd, and three of the ranch sizes (medium, large, and extra-large) would also continue to meet the FTR. Local governments and agencies would continue to receive revenues from these ranch operations, as described under Affected Environment, at their current rates.

5 Southwest Region

For detailed information on this section, refer to Table 4 in Section III of this report.

a. Extra Small Cow/Calf Ranch

Based on the sources of information, before management changes this typical ranch meets the FTPd, but not the FTR. However, if resources are available, it could increase production to meet the FTR. This typical ranch

pays for all of the variable production costs, and 80 percent of the fixed overhead costs. Off-ranch income pays the other 20 percent of fixed overhead costs, about $520, and all of the owner's salary.

b. Small Cow/Calf Ranch

Before any management changes, this typical ranch meets the FTPd, but not the FTR. However, if resources are available, it could increase production to meet the FTR. This typical ranch pays for all of the variable production costs, and 75 percent of the fixed overhead costs. Off-ranch income pays the other 25 percent of fixed overhead costs, about $3,080, and all of the owner's salary.

c. Medium Cow/Calf Ranch

Before any management changes, this typical ranch meets the FTPd, but not the FTR. However, if resources are available, it could increase production to meet the FTR. This typical ranch pays for all of the variable production costs, all of the fixed overhead costs, and 50 percent of the owner's salary. Off-ranch income pays the other 50 percent of the owner's salary, about $7,350.

d. Large Cow/Calf Ranch

Before any management changes, this typical ranch meets the FTPd, but not the FTR. However, if resources are available, it could increase production to meet the FTR. This typical ranch pays for all of the variable production costs, all of the fixed overhead costs, and 74 percent of the owner's salary. Off-ranch income pays the other 26 percent of the owner's salary, about $4,600.

e. Extra Large Cow/Calf Ranch

Before any management changes, this typical ranch meets the FTPd, but not the FTR. However, if resources are available, it could increase production to meet the FTR. This typical ranch pays for all of the variable production costs, all of the fixed overhead costs, and 87 percent of the owner's salary. Off-ranch income pays the other 13 percent of the owner's salary, about $6,500.

f. Conclusion

Under this alternative, all affected ranches in the five typical ranch size categories would continue to meet the FTPd. None of the five typical ranches would meet the FTR. Local governments and agencies would continue to receive revenues from these ranch operations, as described under Affected Environment, at their current rates.

B RAC ALTERNATIVE

1. Central Mountain Region

For details under this section, refer to Tables 5a and 5b in Section III of this report.

a. Extra-Small Cow/Calf Ranch

The management changes under this alternative would result in over a 100 percent loss of ranch income (gross margin) due to a negative gross margin. The ranch can no longer meet the FTPd or the FTR, and the rancher can no longer pay variable production costs or fixed overhead costs. The ranch would be financially better off to discontinue grazing the BLM permit, at least in the short term. If the ranch has other, non-BLM grazing, the ranch could continue to operate on that basis only, provided that the remaining number of AUMs is above the FTPd, or 250 AUMs. If the ranch does not have non-BLM grazing, the ranch operation would have to cease, and all fixed overhead costs would have to be paid from off-ranch income, as well as maintaining their current standard of living.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $850 per year over a ten year period. A 20 percent reduction in BLM AUMs is not relevant under this alternative, as the ranch is worse off financially to use <u>any</u> part of the BLM permit.

b. Small Cow/Calf Ranch

The management changes under this alternative would result in an 80 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 18 percent of fixed overhead costs, and all residual return to investment is lost. The ranch family will need to secure other grazing, or an additional $13,300 of off-ranch income to pay all fixed overhead costs, and $13,720 to maintain their current standard of living (includes residual return to investment). When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $700 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $400.

c. Medium Cow/Calf Ranch

Management changes under this alternative would result in over a 34 percent loss or ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. The ranch can still pay all variable production costs and fixed overhead costs, but only one-third of the owner's salary. The ranch will need to secure other grazing, or the family will need $10,300 of off-ranch income to pay the remainder of the owner's salary, or $14,400 to maintain their current standard of living (includes residual return to investment lost). When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

If a 20 percent reduction in BLM AUMs is added to the management changes, these figures are $12,050 and $16,050 respectively. The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,550 per year over a 10 year period.

d. Large Cow/Calf Ranch

Management changes under this alternative would result in nearly a 22 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. The ranch can still pay all variable production costs and fixed overhead costs, but only 60 percent of the owner's salary. The ranch will need to secure other grazing, or the family will need $8,200 of off-ranch income to pay the remainder of the owner's salary, or $14,900 to maintain their current standard of living (includes residual return to investment lost). This is approximately equal to the level of profitability if the ranch were to stop grazing the BLM permit.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,450 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, the off-ranch income (gross margin) will need to increase to $11,300 and $18,000. With the addition of either the cost of improvements or the reduction in grazing, the ranch would be more profitable to discontinue grazing the BLM permit, at least in the short term.

e. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected BLM permits on extra-small, small, and medium ranches would most likely stop. Only the affected large ranches would probably continue financial activity associated with the BLM permit, and only if there are no reductions in AUMs, and the rancher does not have to bear the cost of improvements himself.

Local governments and agencies could potentially lose: per head livestock taxes; fees and expenses from reduced numbers of livestock on affected BLM permits; maintenance of and new investments in capital improvements of facilities on affected BLM grazing land; and taxable base from owned improvements on affected BLM grazing land. If there are any extra-small affected ranches that are exclusively dependent on BLM grazing, local governments could also lose the taxable base on the private property, as a business, as well.

2. Northeast Region

This region was not analyzed due to the small number of BLM permits, none of which would be affected by management changes proposed in this EIS.

3. Northwest Region

For details under this section, refer to Tables 6a and 6b in Section III of this report.

a. Extra-Small Cow/Calf Ranch

The management changes under this alternative would result in a 78 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 19 percent of the fixed overhead costs. The ranch family will need to secure other grazing, or an additional $1,950 of off-ranch income to pay all fixed overhead costs, or $1,570 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $330 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch

income (gross margin) will be reduced by an additional $290.

b. Small Cow/Calf Ranch

The management changes under this alternative would result in over a 100 percent loss of ranch income (gross margin) due to a negative gross margin. The ranch can no longer pay variable production costs or fixed overhead costs. The ranch would be financially better off to discontinue grazing the BLM permit, at least in the short term. If the rancher has other non-BLM grazing, the ranch could continue to operate on that basis only, provided that the remaining number of AUMs is above the FTPd, or 345 AUMs. If the ranch does not have BLM grazing, the ranch operation would have to cease, and all fixed overhead costs would have to be paid from off-ranch income, as well as maintaining their current standard of living.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $930 per year over a ten year period. A 20 percent reductin in BLM AUMs is not relevant under this alternative, as the ranch is worse off financially to use <u>any</u> part of the BLM permit.

c. Medium Cow/Calf Ranch

The management changes under this alternative would result in a 49 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 6 percent of the fixed overhead costs, and none of the owner's salary. The ranch family will need to secure other grazing, or an additional $22,640 of off-ranch income to pay all fixed overhead costs and the owner's salary, or $16,430 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $1,150 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $2,190.

d. Extra-Large Cow/Calf Ranch

The management changes under this alternative would result in a 50 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. The ranch can still pay all of the variable production costs, but only 10 percent of the fixed overhead costs, none of the owner's salary, and all residual return to investment is lost. The ranch family will need to secure other grazing, or an additional $25,645 of off-ranch income to pay all fixed costs and the owner's salary, or an additional $36,015 to maintain their current standard of living (includes loss of residual return to investment). When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $3,390 per year over a 10 period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $4,880.

e. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected BLM permits on all four size category ranches in this region would most likely stop.

Local governments and agencies could potentially lose: per head livestock taxes; fees and expenses from reduced numbers of livestock on affected BLM permits; maintenance of and new investments in capital improvements of facilities on affected BLM grazing land; and taxable base from owned improvements on affected BLM grazing land. If there are any small affected ranches that are exclusively dependent on BLM grazing, local governments could also lose the taxable base on the private property, as a business, as well.

4. Southeast Region

For details under this section, refer to Tables 7a and 7b in Section III of this report.

a. Extra-Small Cow/Calf Ranch

The management changes under this alternative would result in a 68 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 24 percent of the fixed overhead costs. The ranch family will need to secure other grazing, or an additional $8,670 of off-ranch income to pay all fixed overhead costs, or $5,760 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $630 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $630.

b. Small Cow/Calf Ranch

The management changes under this alternative would result in a 60 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 29 percent of the fixed overhead costs. The ranch family will need to secure other grazing, or an additional $15,360 of off-ranch income to pay all fixed overhead costs, or $9,830 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $1,000 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $1,350 per year.

c. Medium Cow/Calf Ranch

The management changes under this alternative would result in a 48 percent loss of ranch income (gross

margin). The ranch still meets the FTPd, but not the FTR. The ranch can still pay all of the variable production costs and fixed overhead costs, but only 26 percent of the owner's salary and has lost all residual return to investment. The ranch will need to secure other grazing, or an additional $11,550 to pay the remainder of the owner's salary, or $20,030 to maintain their current standard of living (includes residual return to investment lost). When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $1,910 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $3,130.

d. Large Cow/Calf Ranch

The management changes under this alternative would result in a 42 percent loss of ranch income (gross margin). The ranch still meets both the FTPd and the FTR, but the residual return to investment has been reduced to less than $700. The ranch will need to secure other grazing or an additional $32,280 of off-ranch income to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would still be greater if the permit is included, under this alternative. This ranch would be better off, financially, to continue grazing the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $3,350 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $4,880. With the addition of either the cost of improvements or the 20 percent reduction in BLM grazing, the ranch would be better off to discontinue grazing on the BLM permit, at least for the short term.

e. Extra-Large Cow/Calf Ranch

The management changes under this alternative would result in a 36 percent loss of ranch income (gross margin). The ranch still meets both the FTPd and the FTR, but the residual return to investment has been reduced to $17,480. The ranch will need to secure other grazing or an additional $43,070 of off-ranch income to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would still be greater if the permit is included, under this alternative. This ranch would be better off, financially, to continue grazing the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $3,915 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $10,480. With the addition of either the cost of improvements or the 20 percent reduction in BLM grazing, the ranch would still be better off to continue grazing on the BLM permit.

f. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected BLM

permits on extra-small, small, and medium ranches would most likely stop. Only the affected large and extra-large ranches would probably continue financial activity associated with the BLM permit. If there is either a 20 percent reduction in the BLM permit, or the rancher is required to pay the cost of improvements, all financial activity from all the affected BLM permits on large ranches would also most likely stop.

Local governments and agencies could potentially lose: per head livestock taxes; fees and expenses from reduced numbers of livestock on affected BLM permits for extra-small, small, medium, and possibly large ranches; maintenance of and new investments in capital improvements of facilities on affected BLM grazing land for extra-small, small, medium, and possible large ranches; and taxable base from owned improvements on affected BLM grazing land on extra-small, small, medium, and possibly large ranches.

5. Southwest Region

For details under this section, refer to Tables 8a and 8b in Section III of this report.

a. Extra Small Cow/Calf Ranch

Based on the sources of information, the management changes under this alternative would result in over a 55 percent loss of ranch income (gross margin).The ranch still meets the FTPd, but only at levels above 185 AUMs when the BLM permit is included. The ranch can still pay all of the variable production costs, but only 33 percent of the fixed overhead costs. The family will need to secure other grazing, or an additional $1,650 of off-ranch income to pay the remaining fixed overhead costs, or an additional $1,130 to maintain the current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $390 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $285.

b. Small Cow/Calf Ranch

The management changes under this alternative would result in a 60 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 810 AUMs when the BLM permit is included. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 30 percent of the fixed overhead costs. The family will need to secure other grazing, or $8,390 of off-ranch income to pay remaining costs, or an additional $5,310 to maintain the current standard of living. However, when compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is slightly higher than when the permit is excluded, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $590 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $285.

c. Medium Cow/Calf Ranch

Management changes under this alternative would result in a 46 percent loss of ranch income (gross margin).

The ranch still meets the FTPd, but only at levels above 1375 AUMs when the BLM permit is included. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all variable production costs, but only 75 percent of the fixed overhead costs, and none of the owner's salary. The ranch will need to secure other grazing, or the family will need $18,980 of off-ranch income to pay remaining costs, or an additional $11,630 to maintain the current standard of living. However, when compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is higher than when the permit is excluded, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the ranch paying for the cost of improvements required under this alternative is an additional $1,305 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $3,575. This ranch would still be better off, financially, to continue grazing the BLM permit if the rancher pays the cost of improvements, and, if the BLM permit is reduced by 20 percent, at least in the short term.

d. Large Cow/Calf Ranch

Management changes under this alternative would result in a 31.5 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 3480 AUMs when the BLM permit is included. The ranch can still pay all variable production costs and fixed overhead costs, but only 4 percent of the owner's salary. The ranch will need to secure other grazing, or the family will need $16,590 of off-ranch income to pay the remaining costs, or an additional $12,000 to maintain the current standard of living. However, when compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is considerably higher than when the permit is excluded, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $2,300 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $8,090, and no longer pays all of the fixed overhead costs. However, this ranch would still be better off, financially, to continue grazing the BLM permit if the rancher pays the cost of improvements, and, if the BLM permit is reduced by 20 percent, at least in the short term.

e. Extra Large Cow/Calf Ranch

Management changes under this alternative would result in over a 22 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 8040 AUMs when the BLM permit is included. The ranch can still pay all of the variable production costs and fixed overhead costs, but only 35 percent of the owner's salary. The ranch will need to secure other grazing, or the family will need $33,320 of off-ranch income to pay the remaining costs, or an additional $26,820 to maintain the current standard of living. However, when compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is considerably higher than when the permit is excluded, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $5,000 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $25,150, and no longer pays all fixed overhead costs. However, this ranch would still be better off, financially, to continue grazing the BLM permit if the rancher pays the cost of improvements, and, if the BLM permit is reduced by 20 percent, at least in the short term.

f. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected BLM permits on extra small ranches would most likely discontinue in the short term. If a 20 percent reduction in BLM AUMs is added to the management changes, all financial activity from all of the affected BLM permits on small ranches would also most likely discontinue in the short term. Financial activity from affected BLM permits on medium, large and extra large ranches would most likely continue, even if a 20 percent reduction in BLM AUMs is implemented, or if the ranchers pay for the cost of required improvements.

Local governments and agencies could potentially lose: per head livestock taxes on all affected BLM permits on extra small ranches, and possibly small ranches; fees and expenses from reduced numbers of livestock on affected BLM permits of extra small, and possibly small, ranches; maintenance of and new investments in capital improvements of facilities on affected BLM grazing land on extra small, and possibly small, ranches; and taxable base from owned improvements on affected BLM grazing land on extra small, and possibly small, ranches.

C. FALLBACK ALTERNATIVE

1. Central Mountain Region

For details under this section, refer to Tables 9a and 9b in Section III of this report.

a. Extra-Small Cow/Calf Ranch

Based on the sources of information, the management changes in this alternative would result in over a 100 percent loss of ranch income (gross margin) due to a negative gross margin. This ranch no longer meets the FTPd or the FTR. The rancher can no longer pay variable production costs or fixed overhead costs. The ranch would be better off, financially, to discontinue grazing on the BLM permit, at least in the short term. If the ranch has other, non-BLM grazing or can secure other grazing, the ranch could continue to operate on that basis only, provided that the remaining number of AUMs is above the FTPd, or 250 AUMs. If the ranch does not have non-BLM grazing or cannot secure other grazing, the ranch operation would have to cease, and all fixed overhead costs would have to be paid from off-ranch income, as well as maintaining their current standard of living.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $650 per year over a 10 year period. A 20 percent reduction in BLM AUMs is not relevant under this alternative, as the ranch is worse off using <u>any</u> part of the BLM permit.

b. Small Cow/Calf Ranch

Based on the sources of information, the management changes under this alternative would result in an 82.5 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 18 percent of fixed overhead costs, and all residual return to investment is lost. The ranch family will need to secure other grazing, or an additional $13,700 of off-ranch income to pay all fixed costs, and $14,100 to maintain their current standard of living (includes lost residual return to investment). When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $750

per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $300.

c. Medium Cow/Calf Ranch

Based on the sources of information, the management changes under this alternative would result in a loss of ranch income (gross margin) of over 44 percent. The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs and all of the fixed overhead costs, but only contributes $1,000 to the owner's salary, and all residual return to investment is lost. The ranch will need to secure other grazing, or the family will need $14,550 of off-ranch income to pay the remainder of the owner's salary, or $18,650 to maintain their current standard of living (includes residual return to investment lost). When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,550 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, the ranch can no longer pay all of the fixed overhead costs, and pays nothing for the owner's salary. The off-ranch income needs increase by $200 to pay remaining fixed overhead costs, $16,100 to pay overhead and owner's salary, and $20,200 to maintain their current standard of living.

d. Large Cow/Calf Ranch

Based on the sources of information, management changes under this alternative would result in a loss of ranch income (gross margin) of about 31 percent. The ranch still meets the FTPd, but not the FTR. The ranch can still pay all of the variable production costs and fixed overhead costs, but only 40 percent of the owner's salary and has lost all residual return to investment. The ranch will need to secure other grazing, or the family will need $14,500 of off-ranch income to pay the remainder of the owner's salary, or $21,200 to maintain their current standard of living (includes residual return to investment lost). Under this alternative, the ranch would be more profitable to discontinue grazing the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,450 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, the off-ranch income needs increase to $17,400 and $24,000, respectively.

e. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected BLM permits on all four typical ranch sizes would most likely stop. Local governments and agencies could potentially lose: per head livestock taxes, fees and expenses from reduced numbers of livestock on affected permits; maintenance and investments in capital improvements of facilities on affected BLM grazing land; and taxable base from owned improvements on affected BLM grazing land. If there are any extra-small affected ranches that are exclusively dependent on BLM grazing land, local governments could also lose the taxable base on the private property, as a business, as well.

2. Northeast Region

This region was not analyzed due to the small number of BLM permits, none of which would be affected by

management changes proposed in this EIS.

3. Northwest Region

For details under this section, refer to Tables 10a and 10b in Section III of this report.

a. Extra-Small Cow/Calf Ranch

The management changes under this alternative would result in over a 100 percent loss of ranch income (gross margin) due to a negative gross margin. This ranch no longer meets the FTPd or the FTR. The rancher can no longer pay variable production costs or fixed overhead costs. The ranch would be better off, financially, to discontinue grazing on the BLM permit, at least in the short term. If the ranch has other, non-BLM grazing or can secure other grazing, the ranch could continue to operate on that basis only, provided that the remaining number of AUMs is above the FTPd, or 10 AUMs. If the ranch does not have non-BLM grazing or cannot secure other grazing, the ranch operation would have to cease, and all fixed overhead costs would have to be paid from off-ranch income, as well as maintaining their current standard of living.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $330 per year over a 10 year period. A 20 percent reduction in BLM AUMs is not relevant under this alternative, as the ranch is worse off using <u>any</u> part of the BLM permit.

b. Small Cow/Calf Ranch

The management changes in this alternative would result in over a 100 percent loss of ranch income (gross margin) due to negative gross margin. This ranch no longer meets the FTPd or the FTR. The rancher can no longer pay variable production costs or fixed overhead costs. The ranch would be better off, financially, to discontinue grazing on the BLM permit, at least in the short term. If the ranch has other, non-BLM grazing or can secure other grazing, the ranch could continue to operate on that basis only, provided that the remaining number of AUMs is above the FTPd, or 345 AUMs. If the ranch does not have non-BLM grazing or cannot secure other grazing, the ranch operation would have to cease, and all fixed overhead costs would have to be paid from off-ranch income, as well as maintaining their current standard of living.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $930 per year over a 10 year period. A 20 percent reduction in BLM AUMs is not relevant under this alternative, as the ranch is worse off using <u>any</u> part of the BLM permit.

c. Medium Cow/Calf Ranch

The management changes under this alternative would result in a 67 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 46 percent of the fixed overhead costs and none of the owner's salary. The ranch family will need to secure other grazing, or an additional $28,710 of off-ranch income to pay all fixed overhead costs and the owner's salary, or $22,500 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional

$1,160 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $1,870.

d. Extra-Large Cow/Calf Ranch

The management changes under this alternative would result in a 71 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without securing additional non-BLM grazing. The ranch can still pay all of the variable production costs, but only 54 percent of the fixed overhead costs, none of the owner's salary, and all residual return to investment is lost. The ranch family will need to secure other grazing or an additional $40,225 of off-ranch income to pay all fixed overhead costs and the owner's salary, or $50,600 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $3,390 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $4,015.

e. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected BLM permits on all four typical ranch sizes would most likely stop. Local governments and agencies could potentially lose: per head livestock taxes, fees and expenses from reduced numbers of livestock on all affected permits; maintenance and investments in capital improvements of facilities on affected BLM grazing land; and taxable base from owned improvements on all affected BLM grazing land. If there are any extra-small and small ranches that are exclusively dependent on BLM grazing land, local governments could also lose the taxable base on the private property of these ranches, as a business, as well.

4. Southeast Region

For details under this section refer to Tables 11a and 11b in Section III of this report.

a. Extra-Small Cow/Calf Ranch

The management changes under this alternative would result in a 93 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only five percent of the fixed overhead costs. The ranch family will need to secure other grazing, or an additional $10,780 of off-ranch income to pay all fixed overhead costs, or $7,870 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $630 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $440.

b. Small Cow/Calf Ranch

The management changes under this alternative would result in a 75 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 18 percent of the fixed overhead costs. The ranch family will need to secure other grazing or an additional $17,800 of off-ranch income to pay all fixed overhead costs, or $12,270 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,040 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $1,040.

c. Medium Cow/Calf Ranch

The management changes under this alternative would result in a 77 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 54 percent of the fixed overhead costs, and none of the owner's salary, and all residual return to investment is lost. The ranch family will need to secure other grazing, or an additional $23,740 of off-ranch income to pay all fixed overhead costs and owner salary costs, or $32,220 to maintain their current standard of living (includes lost residual return to investment). When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $2,650 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $2,100.

d. Large Cow/Calf Ranch

The management changes under this alternative would result in a 64 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs and all of the fixed overhead costs, but only 17 percent of the owner's salary and all residual return to investment is lost. The ranch family will need to secure other grazing or an additional $16,380 of off-ranch income to pay the remainder of the owner's salary, or $49,360 to maintain their current standard of living (includes residual return to investment). When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $4,650 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $4,160.

e. Extra-Large Cow/Calf Ranch

The management changes under this alternative would result in a 68 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. The ranch can still pay all of the variable production costs and all of the fixed overhead costs, but only 19.6 percent of the owner's salary, and all residual return to investment is lost. If resources are available, this ranch could increase production enough to meet the FTR. The ranch family will need to secure other grazing, or an additional $20,235 to pay the remainder of the owner's salary, or $80,785 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay all costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of required improvements under this alternative is an additional $5,340 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $7,395.

f. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected BLM permits on all five typical ranch sizes would most likely stop. Local governments and agencies could potentially lose: per head livestock taxes, fees and expenses from reduced numbers of livestock on all affected permits; maintenance and investments in capital improvements of facilities on all affected BLM grazing land; and taxable base from owned improvements on all affected BLM grazing land.

5. Southwest Region

For details under this section, refer to Tables 12a and 12b in Section III of this report.

a. Extra Small Cow/Calf Ranch

Based on the sources of information, the management changes under this alternative would result in over an 89 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 190 AUMs when the BLM permit is included. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs but only 7 percent of the fixed overhead costs. The family will need to secure other grazing, or $2,350 of off-ranch income to pay remaining costs, or an additional $1,830 to maintain the current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The costs of the rancher paying for the costs of improvements required under this alternative is an additional $390 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $200.

b. Small Cow/Calf Ranch

The management changes under this alternative would result in over a 100 percent loss of ranch income (gross margin) due to a negative gross margin. This ranch no longer meets the FTPd when the BLM permit is included.

The ranch can longer pay the variable production costs or fixed overhead costs. The ranch would be better off, financially, to discontinue grazing on the BLM permit, at least in the short term. If the ranch has other, non-BLM grazing or can secure other grazing, the ranch could continue to operate on that basis only, provided that the remaining number of AUMs is above the FTPd (35 AUMs for private grazing only, 260 AUMs with State lease). If the ranch does not have non-BLM grazing or cannot secure other grazing, the ranch operation would have to discontinue, and all fixed overhead costs would have to be paid from off-ranch income, as well as maintaining their current standard of living.

The costs of the rancher paying for the cost of improvements required under this alternative is an additional $700 per year over a 10 year period. A 20 percent reduction in BLM AUMs is not relevant under this alternative, as the ranch is worse off grazing <u>any</u> part of the BLM permit.

c. Medium Cow/Calf Ranch

Management changes under this alternative would result in a 91 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 2,460 AUMs when the BLM permit is included. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all variable production costs, but only 12 percent of the fixed overhead costs, and none of the owner's salary. The ranch will need to secure other grazing, or the family will need $23,480 of off-ranch income to pay the remaining costs, or an additional $16,130 to maintain the current standard of living. However, when compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is slightly higher than when the permit is excluded, under this alternative. The ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,300 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $2,140. This ranch would be worse off, financially, to continue grazing the BLM permit if the rancher pays the cost of improvements, or, if the BLM permit is reduced by 20 percent, at least in the short term.

d. Large Cow/Calf Ranch

Management changes under this alternative would result in an 84 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 4,390 AUMs when the BLM permit is included. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all variable production costs, but only 24 percent of the fixed overhead costs, and none of the owner's salary. The ranch will need to secure other grazing, or the family will need $36,500 of off-ranch income to pay remaining costs, or an additional $31,900 to maintain the current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is considerably higher if the BLM permit is excluded, under this alternative. This ranch would be better off, financially, to discontinue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $2,550 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $5,600.

e. Extra Large Cow/Calf Ranch

Management changes under this alternative would result in an 80 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 12,300 AUMs when the BLM permit is

included. It is not possible for this ranch to increase production enough to meet the FTR without acquiring other non-BLM grazing land. The ranch can still pay all of the variable production costs, but only 32 percent of fixed overhead costs, and none of the owner's salary. The ranch will need to secure other grazing, or the family will need $102,480 of off-ranch income to pay the remainder of fixed overhead costs and the owner's salary, or $95,980 to maintain the current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is considerably higher when the BLM permit is excluded, under this alternative. This ranch would be better off, financially, to discontinue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $5,300 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $16,670.

f. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected BLM permits on four ranch sizes would most likely discontinue in the short term. Only the affected medium sized ranches would continue grazing their BLM permits. If a 20 percent reduction in BLM AUMs was added to the management changes, the result would be that all financial activity from all five of the ranch sizes of the affected BLM permits would most likely discontinue in the short term. If ranches must bear the cost of improvements required under this alternative, the result would be the same as the reduction conditions mentioned above.

Local governments and agencies could potentially lose: per head livestock taxes on affected BLM permits of four, and possibly all five, ranch sizes; fees and expenses from reduced numbers of livestock on all affected BLM permits of four, and possibly all five, ranch sizes; maintenance of and new investments in capital improvements of facilities on all affected BLM grazing land on four, and possibly all five, ranch sizes; and taxable base from owned improvements on all affected BLM grazing land on four, and possibly all five, ranch sizes.

D. COUNTY ALTERNATIVE

1. Central Mountain Region

For details under this section, refer to Tables 13a and 13b in Section III of this report.

a. Extra-Small Cow/Calf Ranch

Based on the sources of information, the management changes under this alternative would result in a 69 percent loss of ranch income (gross margin). This ranch would still meet the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch could still pay all variable production costs and about 14 percent of fixed overhead costs. If the ranch cannot secure other grazing the off-ranch income will need to increase by $3,500 to pay all fixed overhead costs for a total of $9,800. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is slightly higher when the permit is excluded.

The cost of the rancher paying for the cost of improvement required under this alternative is an additional $600 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced an additional $300, requiring a total of $10,100 in off-ranch income to pay all fixed overhead costs and maintain their current standard of living.

b. Small Cow/Calf Ranch

Based on the sources of information, the management changes under this alternative would result in a 38 percent loss of ranch income (gross margin). This ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but will need to secure other grazing, or $6,150 of off-ranch income to pay all fixed overhead costs, and $6,570 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $750 per year over a 10 year period. If a 20 percent reduction of BLM AUMs is added to management changes, ranch income (gross margin) will be reduced by an additional $520.

c. Medium Cow/Calf Ranch

Based on the sources of information, the management changes under this alternative would result in a loss of ranch income (gross margin) of about 23 percent. The ranch still meets the FTPd, but not the FTR. If resources are available, this ranch could expand production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs and fixed overhead costs, but only two-thirds of the owner's salary. The ranch would have to secure other grazing, or the family will need off-ranch income of $5,600 to pay the remainder of the owner's salary, or $9,700 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be about the same when the permit is excluded, under this alternative.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,150 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, only one-half of the owner's salary is paid, and the family will need $7,500 and $11,600, respectively. If either the grazing is reduced, or the rancher must pay for the costs of improvements, this ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

d. Large Cow/Calf Ranch

Based on the sources of information, management changes under this alternative would result in a loss of ranch income (gross margin) of 8.3 percent. The ranch still meets the FTPd, and the FTR. The ranch can still pay all variable production costs, fixed overhead costs, and owner's salary with a residual return to investment of $1,000. Under this alternative, the ranch would be more profitable to continue using the BLM permit.

The cost of the ranch paying for the cost of improvements required under this alternative is an additional $850 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, the ranch can pay on 85 percent of the owner's salary, but is still more profitable to continue grazing the BLM permit. The off-ranch income needs are $2,300 to pay the remainder of the owner's salary, or $5,800 to maintain their current standard of living. With both conditions, reduction of BLM AUMs and cost of improvements, the ranch is still better off, financially, to continue grazing the BLM permit.

e. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected extra-

small and small ranch permits would most likely stop. Financial activity on the affected medium ranches would continue provided the ranch does not have to bear the cost of improvements or suffer a 20 percent reduction in BLM AUMs. Financial activity on all affected large ranches would most likely continue.

Local governments and agencies could potentially lose: per head livestock taxes, fees and expenses from affected extra-small, small and possibly medium ranches on reduced numbers of livestock; maintenance and new investments in capital improvements of facilities on BLM grazing land on affected extra-small, small and possibly medium ranches; and taxable base from owned improvements on BLM grazing land on affected extra-small, small and possibly medium ranches.

2. Northeast Region

This region was not analyzed due to the small number of BLM permits, none of which would be affected by management changes proposed in this EIS.

3. Northwest Region

For details under this section, refer to Tables 14a and 14b in Section III of this report.

a. Extra-Small Cow/Calf Ranch

The management changes under this alternative would result in a 52.5 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. If resources are available, it is possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 40 percent of the fixed overhead costs. The ranch family will need to secure other grazing, or an additional $1,440 of off-ranch income to pay all fixed overhead costs, or $1,060 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be slightly greater when the permit is included, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $330 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $350. If the rancher must pay for improvements, or a reduction of AUMs is added to the management changes, the amount of gross margin available to pay for fixed overhead costs will be less than if the BLM permit were excluded. This ranch would be worse off, financially, to continue grazing on the BLM permit under either of these scenarios, at least in the short term.

b. Small Cow/Calf Ranch

The management changes under this alternative would result in a 75 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 15 percent of the fixed overhead costs. The ranch family will need to secure other grazing, or an additional $10,720 of off-ranch income to pay the remainder of fixed overhead costs, or $5,780 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $825 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $1,100.

c. Medium Cow/Calf Ranch

Management changes under this alternative would result in a 26 percent loss of ranch income (gross margin). This ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs and fixed overhead costs, but only 4 percent of the owner's salary. The ranch family will need to secure other grazing, or an additional $15,040 of off-ranch income to pay all fixed overhead costs, or $8,830 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay all costs is about even with or without the permit. This ranch would probably continue grazing the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements under this alternative is an additional $1,160 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $2,590. If the rancher must pay for improvements, or a reduction in AUMs is added to the management changes, the amount of gross margin available to pay all costs is greater when the BLM permit is excluded. This ranch would be worse off, financially, to continue grazing the BLM permit under either of these scenarios, at least in the short term.

d. Extra-Large Cow/Calf Ranch

The management changes under this alternative would result in a 27 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. If resources are available, this ranch could increase production enough to meet the FTR. The ranch can still pay all of the variable production costs and all of the fixed overhead costs, but only 59 percent of the owner's salary, and all residual return to investment is lost. The ranch family will need to secure other grazing, or an additional $9,160 of off-ranch income to pay the remainder of the owner's salary, or $19,530 to maintain their current standard of living (includes residual return to investment lost). When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay all costs is much greater if the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $3,390 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $5,430.

e. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected small and extra-large ranch permits would most likely stop. Only financial activity on the extra-small and medium ranches would continue, and only if these ranchers are not required to pay for required improvements, or suffer a 20 percent reduction in BLM AUMs.

Local governments and agencies could potentially lose: per head livestock taxes, fees and expenses from small and extra-large ranches (and possibly all ranches) on reduced numbers of livestock; maintenance and new investments in capital improvements of facilities on BLM grazing land on affected small and extra-large ranches (and possibly all ranches); and taxable base from owned improvements on BLM grazing land on affected small and

extra-large ranches (and possibly all ranches).

4. Southeast Region

For details under this section, refer to Tables 16a and 16b in Section III of this report.

a. Extra-Small Cow/Calf Ranch

Management changes under this alternative would result in a 53 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 35 percent of the fixed overhead costs. The ranch family will need to secure other grazing, or an additional $7,410 of off-ranch income to pay the remainder of fixed overhead costs, or $4,500 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $630 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $750.

b. Small Cow/Calf Ranch

Management changes under this alternative would result in a 33 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but not the FTR. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 50 percent of the fixed overhead costs. The ranch family will need to secure other grazing, or an additional $10,955 of off-ranch income to pay all fixed overhead costs, or $5,425 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is greater when the permit is included, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,000 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $1,855. This ranch would still be better off, financially, to continue grazing the BLM permit if either, or both, of these conditions were added to the management changes.

c. Medium Cow/Calf Ranch

Management changes under this alternative would result in a 19 percent loss of ranch income (gross margin). The ranch still meets the FTPd and the FTR. The ranch can still pay all costs, but the residual return to investment has been reduced to $410. The ranch family would need an additional $8,070 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay all costs is considerably greater when the BLM permit is included, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,910 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management

changes, ranch income (gross margin) will be reduced by an additional $4,200. This ranch would still be better off, financially, to continue grazing the BLM permit if either, or both, of these conditions were added to the management changes.

d. Large Cow/Calf Ranch

Management changes under this alternative would result in a 19 percent loss of ranch income (gross margin). The ranch still meets the FTPd and the FTR. The ranch can still pay all costs, but the residual return to investment has been reduced to $18,620. The ranch family would need an additional $14,360 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay all costs is considerably greater when the BLM permit is included, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $3,350 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $7,200. This ranch would still be better off, financially, to continue grazing the BLM permit if either, or both, of these conditions were added to the management changes.

e. Extra-Large Cow/Calf Ranch

Management changes under this alternative would result in a 17 percent loss of ranch income (gross margin). The ranch still meets the FTPd and the FTR. The ranch can still pay all costs, but the residual return to investment has been reduced to $39,900. The ranch family would need an additional $20,650 to maintain their current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay all costs is considerably greater when the BLM permit is included, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $3,910 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $12,300. This ranch would still be better off, financially, to continue grazing the BLM permit if either, or both, of these conditions were added to the management changes.

f. Conclusion

As a result of management changes under this alternative, all financial activity from all of the affected extra-small ranch permits would most likely stop. However, all financial activity on the remaining four typical ranch size permits would most likely continue, even if the rancher is required to pay for required improvements and the BLM permits are reduced by 20 percent.

Local governments and agencies could potentially lose: per head livestock taxes, fees and expenses from affected extra-small ranches on reduced numbers of livestock; maintenance and new investments in capital improvements of facilities on BLM grazing land on affected extra-small ranches; and taxable base from owned improvements on BLM grazing land on affected extra-small ranches.

5. Southwest Region

For details under this section, refer to Tables 17a and 17b in Section III of this report.

a. Extra Small Cow/Calf Ranch

The management changes under this alternative would result in a 37 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 155 AUMs when the BLM permit is included. If resources are available, it is possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 50 percent of the fixed overhead costs. The family will need to secure other grazing, or $1,290 of off-ranch income to pay remaining costs, or an additional $770 to maintain the current standard of living. When compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs would be greater when the permit is excluded, under this alternative. This ranch would be worse off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $390 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to management changes, ranch income (gross margin) will be reduced by an additional $330.

b. Small Cow/Calf Ranch

The management changes under this alternative would result in a 52.5 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 720 AUMs when the BLM permit is included. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all of the variable production costs, but only 35 percent of fixed overhead costs. The family will need to secure other grazing, or $7,750 of off-ranch income to pay remaining costs, or an additional $4,670 to maintain the current standard of living. However, when compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is higher than when the permit is excluded, under this alternative. Therefore, this ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $590 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $1,350. Therefore, this ranch would be better off, financially, to continue grazing the BLM permit under <u>either</u> of these conditions, but <u>not</u> <u>both</u> conditions, at least in the short term.

c. Medium Cow/Calf Ranch

Management changes under this alternative would result in a 43 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 1,280 AUMs when the BLM permit is included. It is not possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all variable production costs, but only 78 percent of the fixed overhead costs, and none of the owner's salary. The ranch will need to secure other grazing, or the family will need $18,370 of off-ranch income to pay the remaining costs, or an additional $11,020 to maintain the current standard of living. However, when compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is considerably higher than when the permit is excluded, under this alternative. Therefore, this ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $1,300 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management

changes, ranch income (gross margin) will be reduced by an additional $3,690. Therefore, this ranch would be better off, financially, to continue grazing the BLM permit under either of these conditions, or even under both conditions combined, at least in the short term.

d. Large Cow/Calf Ranch

Management changes under this alternative would result in a 29 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 3,150 AUMs when the BLM permit is included. If resources are available, it is possible for this ranch to increase production enough to meet the FTR without expanding to a larger ranch size. The ranch can still pay all variable production costs and fixed overhead costs, but only 10 percent of the owner's salary. The ranch will need to secure other grazing, or the family will need $15,570 to pay the remaining costs, or an additional $10,970 to maintain the current standard of living. However, when compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is considerably higher than when the permit is excluded, under this alternative. Therefore, this ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $2,300 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $8,210. Therefore, this ranch would be better off, financially, to continue grazing on the BLM permit under either of these conditions, or even under both conditions combined, at least in the short term.

e. Extra Large Cow/Calf Ranch

Management changes under this alternative would result in a 20 percent loss of ranch income (gross margin). The ranch still meets the FTPd, but only at levels above 7,870 AUMs when the BLM permit is included. If resources are available, it is possible for this ranch to increase production enough to meet the FTR. The ranch can still pay all of the variable production costs and fixed overhead costs, but only 41 percent of the owner's salary. The ranch will need to secure other grazing, or the family will need $30,290 of off-ranch income to pay the remainder of the owner's salary, or $23,790 to maintain the current standard of living. However, when compared to lower levels of production excluding the BLM permit, the amount of gross margin available to pay fixed overhead costs is considerably higher than when the BLM permit is excluded, under this alternative. This ranch would be better off, financially, to continue grazing on the BLM permit, at least in the short term.

The cost of the rancher paying for the cost of improvements required under this alternative is an additional $5,000 per year over a 10 year period. If a 20 percent reduction in BLM AUMs is added to the management changes, ranch income (gross margin) will be reduced by an additional $25,510. Therefore, this ranch would be better off, financially, to continue grazing on the BLM permit under either of these conditions, or even under both conditions combined, at least in the short term.

f. Conclusion

As a result of management changes under this alternative, financial activity from all of the affected BLM permits on extra-small ranches would most likely discontinue in the short term. The affected small, medium, large and extra large ranches, however, would most likely continue grazing on their BLM permits. If a 20 percent reduction was added to the management changes, the small, medium, large and extra large ranches would still be better off, financially, and would most likely continue grazing on the BLM permits. If affected ranchers must bear the cost of improvements required under this alternative, these same ranch categories (small, medium, large and extra large) would also be better off, financially, and would most likely continue grazing on the BLM permits. However, if <u>both</u> the 20 percent reduction <u>and</u> the cost of improvements were added to the management changes

under this alternative, all financial activity from all of the affected BLM permits on small ranches would also most likely discontinue in the short term.

Local governments and agencies could potentially lose per head livestock taxes on all affected BLM permits of all extra small, and possibly small, ranches; fees and expenses from reduced number of livestock on all affected BLM permits on extra small, and possibly small, ranches; maintenance of and new investments in capital improvements of facilities on all affected BLM grazing land on extra small, and possibly small, ranches; and taxable base from owned improvements on all affected BLM grazing land on extra small, and possibly small, ranches.

E. TABLES

This section contains tables and charts used in the analysis.

Table 1. Central Mountain Region
Current Conditions/No Action Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch
Typical Ranch AUMs*	636	1596	3408	5826
Percent BLM	26.73%	11.78%	20.98%	20.01%
Gross Revenues*	$15,040	$39,760	$84,570	$137,900
Gross Returns/AUM	$23.73	$24.91	$24.82	$23.67
Variable Production Costs*	$10,000	$22,680	$42,470	$69,240
Variable Production Costs/AUM	$15.72	$14.21	$12.46	$11.88
Gross Margin/AUM	$7.93	$10.70	$12.36	$11.79
Fixed Overhead Costs*	$11,350	$16,670	$38,030	$62,010
Financial Threshold for Production	250 AUMs	510 AUMs	375 AUMs	750 AUMs
Financial Threshold for Risk	Not possible	1550 AUMs	3100 AUMs	5260 AUMs
Amount of additional income to pay Fixed Overhead Costs*	$6,300	$0	$0	$0

* Based on ten-year-average budgets developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and large ranches only.

Table 2. Northwest Region
Current Conditions/No Action Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	249	1,309	3,616	7,880
Percent BLM	68.20%	46.79%	26.22%	22.79%
Gross Revenues*	$5,490	$28,870	$78,650	$176,280
Gross Returns/AUM	$22.05	$22.05	$21.75	$22.37
Variable Production Costs*	$3,470	$21,180	$45,060	$104,790
Variable Production Costs/AUM	$13.92	$16.18	$12.46	$13.30
Gross Margin/AUM	$8.13	$5.87	$9.29	$9.07
Fixed Overhead Costs*	$2,400	$12,630	$39,800	$61,120
Financial Threshold for Production	2nd 90+ AUMs 1st 10 - 79	2nd 800+ AUMs 1st 345 - 697	100 AUMs	1,000 AUMs
Financial Threshold for Risk	295 AUMs	Not possible	4,284 AUMs	6,739 AUMs
Amount of additional income to pay Fixed Over-head Costs*	$380	$4,940	$6,210	$0

* Based on ten-year-average budgets developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and extra-large ranches only.

Table 3. Southeast Region
Current Conditions/No Action Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	636	1,221	3,124	5,671	8,895
Percent BLM	44.97%	58.07%	45.01%	45.02%	44.98%
Gross Revenues*	$14,980	$29,200	$74,690	$137,010	$217,930
Gross Returns/AUM	$23.56	$23.91	$23.91	$24.16	$24.50
Variable Production Costs*	$6,545	$12,940	$32,920	$60,360	$99,550
Variable Production Costs/AUM	$10.31	$10.60	$10.54	$10.64	$11.19
Gross Margin/AUM	$13.25	$13.31	$13.37	$1352	$13.31
Fixed Overhead Costs*	$11,350	$21,780	$33,300	$43,680	$57,830
Financial Threshold for Production	40 AUMS	40 AUMs	130 AUMs	50 AUMs	100 AUMs
Financial Threshold for Risk	856 AUMs	1,637 AUMs	2,491 AUMs	3,231 AUMs	2nd 5,600 AUMs 1st. 4,345 – 4,894 AUMs
Amount of additional income to pay Fixed Overhead Costs*	$2,910	$5,530	$0	$0	$0

* Based on ten-year-average budgets developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

Table 4. Southwest Region
Current Conditions/No Action Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	259	1,204	2,777	5,103	15,166
Percent BLM	63.32%	62.04%	64.03%	62.34%	62.34%
Gross Revenues*	$5,245[2]	$24,375	$57,625	$108,290	$321,830
Gross Returns/AUM	$20.25[2]	$20.25	$20.75	$21.22	$21.22
Variable Production Costs*	$3,200	$15,510	$32,230	$70,200	$201,455
Variable Production Costs/AUM	$12.34	$12.89	$11.61	$13.76	$13.28
Gross Margin/AUM	$7.91	$7.36	$9.14	$7.46	$7.94
Fixed Overhead Costs*	$2,570	$11,940	$32,740	$42,670	$126,820
Financial Threshold for Production	12+ AUMs	3rd 650+ 2nd 260-460 1st 35-146	2nd 450+ 1st 25-246	3rd 2,520+ 2nd 1100-1920 1st 15-597	2nd 7130+ 1st 1000 – 5712
Financial Threshold for Risk	325+ AUMs	1625+ AUMS	3580+ AUMs	5500+ AUMs	15,630+ AUMs
Amount of additional income to pay Fixed Over-head Costs*	$520	$3,080	$7,350	$4,600	$6,500

* Based on ten-year-average budgets developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

[2]Based on Feed Program payment of $.47/AUM.

Table 5a Central Mountain Region
RAC Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch
Typical Ranch AUMs*	636	1596	3408	5826
Percent BLM	26.73%	11.78%	20.98%	20.01%
Gross Revenues*	$10,000	$29,570	$73,650	$129,570
Gross Returns/AUM	$15.73	$18.53	$21.61	$22.24
Variable Production Costs*	$11,780	$26,190	$45,930	$75,790
Variable Production Costs/AUM	$18.52	$16.41	$13.48	$13.01
Gross Margin/AUM	($2.79)	$2.12	$8.13	$9.23
Fixed Overhead Costs*	$11,350	$16,670	$38,030	$62,010
Financial Threshold for Production	Not possible w/ BLM permit, 250 AUMs w/o BLM permit	510 AUMs	375 AUMs	750 AUMs
Financial Threshold for Risk	Not possible	Not possible	4675 AUMs	6700 AUMs
Amount of additional income to pay Fixed Over-head Costs*	$11,350 with BLM permit, $7,900 w/o BLM permit	$13,300 with BLM permit, $2,200 w/o BLM permit	$10,300 with BLM permit, $4,000 w/o BLM permit	$8,200 with BLM permit, $7,300 w/o BLM permit
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	N/A	$14,000 with BLM permit, N/A w/o BLM permit	$11,850 with BLM permit, N/A w/o BLM permit	$9,650 with BLM permit, N/A w/o BLM permit

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and large ranches only.

Table 5b. Central Mountain Region
RAC alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch
Typical Ranch AUMs*	602	1558	3265	5593
Gross Revenues*	$9,470	$28,870	$70,560	$124,390
Gross Returns/AUM	$15.73	$18.53	$21.61	$22.24
Variable Production Costs*	$11,420	$25,880	$44,570	$73,700
Variable Production Costs/AUM	$18.97	$16.61	$13.65	$13.18
Gross Margin/AUM	($3.24)	$1.92	$7.96	$9.06
Fixed Overhead Costs*	$11,350	$16,670	$38,030	$62,010
Amount of additional income to pay Fixed Overhead Costs*	N/A w/ BLM permit, $7,900 w/o BLM permit	$13,700 with BLM permit, $2,200 w/o BLM permit	$12,050 with BLM permit, $4,000 w/o BLM permit	$11,300 with BLM permit, $7,300 w/o BLM permit
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	N/A	$14,400 with BLM permit, N/A w/o permit	$13,600 with BLM permit, N/A w/o permit	$12,750 with BLM permit, N/A w/o permit

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and large ranches only.

Table 6a Northwest Region
RAC Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	249	1309	3616	7880
Percent BLM	68.20%	46.79%	26.22%	22.79%
Gross Revenues*	$4,150	$21,795	$65,410	$104,790
Gross Returns/AUM	$16.68	$16.65	$18.09	$18.64
Variable Production Costs*	$3,700	$22,430	$48,250	$111,410
Variable Production Costs/AUM	$14.88	$17.13	$13.34	$14.14
Gross Margin/AUM	$1.80	($.48)	$4.75	$4.50
Fixed Overhead Costs*	$2,400	$12,630	$39,800	$61,120
Financial Threshold for Production	150 AUMs w/BLM 10 AUMs w/o BLM	Not possible w/BLM 345 AUMs w/o BLM	100	1,000
Financial Threshold for Risk	Not possible	Not possible	Not possible	13,583 AUMs
Amount of additional income to pay Fixed Overhead Costs*	$1,950 w/BLM permit $1,685 w/o	$12,630 w/BLM permit $8,270 w/o	$22,640 w/BLM permit $14,840 w/o	$25,645 w/BLM permit $20,515 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$2,280 w/BLM permit, N/A w/o	N/A	$23,790 w/BLM permit, N/A w/o	$29,035 w/BLM permit, N/A w/o

** Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and extra-large ranches only.

Table 6b. Northwest Region
RAC alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	215	1187	3426	7521
Gross Revenues*	$3,590	$19,760	$61,980	$140,190
Gross Returns/AUM	$16.68	$16.65	$18.09	$18.64
Variable Production Costs*	$3,430	$21,260	$47,010	$109,590
Variable Production Costs/AUM	$15.93	$17.91	$13.72	$14.57
Gross Margin/AUM	$.75	($1.26)	$4.37	$4.07
Fixed Overhead Costs*	$2,400	$12,630	$39,800	$61,120
Amount of additional income to pay Fixed Overhead Costs*	$2,240 w/BLM permit $1,685 w/o	N/A w/BLM $8,270 w/o BLM	$24,830 w/BLM permit $14,840 w/o	$30,525 w/BLM permit $20,515 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$2,570 w/BLM permit N/A w/o	N/A	$25,980 w/BLM permit N/A w/o	$33,910 w/BLM permit N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and extra-large ranches only.

Table 7a Southeast Region
RAC Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	636	1221	3124	5671	8895
Percent BLM	44.97%	58.07%	45.01%	45.02%	20.57%
Gross Revenues*	$9,950	$20,400	$57,325	$110,070	$182,970
Gross Returns/AUM	$15.64	$16.71	$18.35	$19.41	$20.57
Variable Production Costs*	$7,270	$13,980	$35,580	$65,700	$107,660
Variable Production Costs/AUM	$11.43	$11.45	$11.39	$11.58	$12.10
Gross Margin/AUM	$4.21	$5.26	$6.96	$7.83	$8.47
Fixed Overhead Costs*	$11,350	$21,780	$33,300	$43,680	$57,830
Financial Threshold for Production	410 AUMs w/BLM 40 w/o	710 w/BLM 40 w/o	130	50	100
Financial Threshold for Risk	Not possible	Not possible	4784	5582	6830
Amount of additional income to pay Fixed Over-head Costs*	$8,670 w/BLM $6,620 w/o	$15,360 w/BLM $14,740 w/o	$11,550 w/BLM $10,070 w/o	$0 w/BLM $1,040 w/o	$0 w/BLM $0 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$9,300 w/BLM N/A w/o	$16,360 w/BLM N/A w/o	$13,460 w/BLM N/A w/o	$3,350 w/BLM N/A w/o	$0

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

Table 7b. Southeast Region
RAC alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	579	1079	2843	5160	8095
Gross Revenues*	$9,060	$18,030	$52,170	$100,160	$166,510
Gross Returns/AUM	$15.64	$16.71	$18.35	$19.41	$20.57
Variable Production Costs*	$7,010	$12,960	$33,550	$61,360	$101,680
Variable Production Costs/AUM	$12.10	$12.01	$11.80	$11.89	$12.56
Gross Margin/AUM	$3.54	$4.70	$6.55	$7.52	$8.01
Fixed Overhead Costs*	$11,350	$21,780	$33,300	$43,680	$57,830
Amount of additional income to pay Fixed Overhead Costs*	$9,300 w/BLM $6,620 w/o	$16,710 w/BLM $14,740 w/o	$14,680 w/BLM $10,070 w/o	$4,880 w/BLM $1,040 w/o	$0 w/BLM $0 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$9,930 w/BLM N/A w/o	$17,710 w/BLM N/A w/o	$16,590 w/BLM N/A w/o	$8,230 w/BLM N/A w/o	$0

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

Table 8a Southwest Region
RAC Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	259	1204	2777	5103	15166
Percent BLM	63.32%	62.05%	64.03%	62.34%	62.34%
Gross Revenues*	$4,380[3]	$20,350	$47,960	$99,050	$303,170
Gross Returns/AUM	$16.90[3]	$16.90	$17.27	$19.41	$19.99
Variable Production Costs*	$3,460	$16,790	$34,200	$72,970	$209,670
Variable Production Costs/AUM	$13.35	$13.94	$12.31	$14.30	$13.83
Gross Margin/AUM	$3.55[2]	$2.96	$4.96	$5.11	$6.16
Fixed Overhead Costs*	$2,570	$11,940	$32,740	$42,670	$126,820
Financial Threshold for Production	185 AUMs w/BLM 12 w/o	810 w/BLM 2nd 260-460 1st 35-146	1375 w/BLM 2nd 450-999 1st 25-246	3480 w/BLM 2nd 1100-1922 1st 15-597	8040 w/BLM 1000-5712 w/o
Financial Threshold for Risk	724+ AUMs	Not possible	Not possible	6,400+ AUMs	17,500+ AUMs
Amount of additional income to pay Fixed Overhead Costs*	$1,650 w/BLM $755 w/o	$8,390 w/BLM $9,450 w/o	$18,980 w/BLM $24,350 w/o	$16,590 w/BLM $28,740 w/o	$33,320 w/BLM $78,200 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$2,040 w/BLM N/A w/o	$8,980 w/BLM N/A w/o	$20,285 w/BLM N/A w/o	$18,890 w/BLM N/A w/o	$38,320 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

[3]Based on feed program payment of $.47/AUM

Table 8b. Southwest Region
RAC alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	226	1055	2421	4467	13,275
Gross Revenues*	$3,820	$17,830	$41,810	$86,700	$265,370
Gross Returns/AUM	$16.90	$16.90	$17.27	$19.41	$19.99
Variable Production Costs*	$3,185	$15,545	$31,665	$68,710	$197,000
Variable Production Costs/AUM	$14.09	$14.73	$13.08	$15.38	$14.84
Gross Margin/AUM	$2.81	$2.17	$4.19	$4.03	$5.15
Fixed Overhead Costs*	$2,570	$11,940	$32,740	$42,670	$126,820
Amount of additional income to pay Fixed Overhead Costs*	$1,935 w/BLM, $755 w/o	$9,660 w/BLM, $9,450 w/o	$22,555 w/BLM $24,350 w/o	$24,680 w/BLM $28,740 w/o	$58,470 w/BLM $78,200 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$2,325 w/BLM N/A w/o	$10,250 w/BLM N/A w/o	$23,860 w/BLM N/A w/o	$26,980 w/BLM N/A w/o	$63,470 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

Table 9a. Central Mountain Region
Fallback Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch
Typical Ranch AUMs*	636	1596	3408	5826
Percent BLM	26.73%	11.78%	20.98%	20.01%
Gross Revenues*	$11,200	$29,570	$70,410	$125,900
Gross Returns/AUM	$17.61	$18.53	$20.66	$21.61
Variable Production Costs*	$11,610	$26,570	$46,920	$78,410
Variable Production Costs/AUM	$18.25	$16.65	$13.77	$13.46
Gross Margin/AUM	($.64)	$1.88	$6.89	$8.15
Fixed Overhead Costs*	$11,350	$16,670	$38,030	$62,010
Financial Threshold for Production	Not possible w/ BLM permit, 250 AUMs w/o permit	510 AUMs	375 AUMs	750 AUMs
Financial Threshold for Risk	Not possible	Not possible	Not possible	7,600 AUMs
Amount of additional income to pay Fixed Overhead Costs*	N/A with BLM permit, $7,900 w/o permit	$13,650 with BLM permit, $2,200 w/o permit	$14,550 with BLM permit, $4,000 w/o permit	$14,500 with BLM permit, $7,300 w/o permit
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	N/A	$14,400 with BLM permit, N/A w/o permit	$16,100 with BLM permit, N/A w/o permit	$15,950 with BLM permit, N/A w/o permit

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and large ranches only.

Table 9b. Central Mountain Region
Fallback Alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch
Typical Ranch AUMs*	602	1558	3265	5593
Gross Revenues*	$10,600	$28,870	$67,455	$120,865
Gross Returns/AUM	$17.61	$18.53	$20.66	$21.61
Variable Production Costs*	$11,240	$26,260	$45,515	$76,250
Variable Production Costs/AUM	$18.67	$16.85	$13.94	$13.63
Gross Margin/AUM	($1.06)	$1.68	$6.72	$7.98
Fixed Overhead Costs*	$11,350	$16,670	$38,030	$62,010
Amount of additional income to pay Fixed Overhead Costs*	N/A	$14,050 with BLM permit, $2,200 w/o permit	$16,100 with BLM permit, $4,000 w/o permit	$17,400 with BLM permit, $7,300 w/o permit
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	N/A	$14,800 with BLM permit, N/A w/o permit	$17,650 with BLM permit, N/A w/o permit	$18,850 with BLM permit, N/A w/o permit

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and large ranches only.

Table 10a Northwest Region
Fallback Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	249	1,309	3,616	7,880
Percent BLM	68.20%	46.79%	26.22%	22.79%
Gross Revenues*	$3,590	$18,800	$59,340	$133,410
Gross Returns/AUM	$14.40	$14.36	$16.41	$16.93
Variable Production Costs*	$3,820	$22,740	$48,250	$112,510
Variable Production Costs/AUM	$15.34	$17.37	$13.34	$14.28
Gross Margin/AUM	($.94)	($3.01)	$3.07	$2.65
Fixed Overhead Costs*	$2,400	$12,630	$39,800	$61,120
Financial Threshold for Production	Not possible w/BLM 10+ AUMs w/o	Not Possible w/BLM 345+ AUMs w/o	100+ AUMs	1,000+ AUMs
Financial Threshold for Risk	Not possible	Not possible	Not possible	Not possible
Amount of additional income to pay Fixed Overhead Costs*	N/A w/BLM $1,685 w/o	N/A w/BLM $8,270 w/o	$28,710 w/BLM $14,840 w/o	$40,225 w/BLM $5,075 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	N/A	N/A	$29,870 w/BLM N/A w/o	$43,615 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and extra-large ranches only.

Table 10b. Northwest Region
Fallback alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	215	1,187	3,426	7,521
Gross Revenues*	$3,100	$17,045	$56,220	$127,330
Gross Returns/AUM	$14.40	$14.36	$16.41	$16.93
Variable Production Costs*	$3,530	$21,540	$47,010	$110,450
Variable Production Costs/AUM	$16.43	$18.15	$13.72	$14.69
Gross Margin/AUM	($2.03)	($3.79)	$2.69	$2.24
Fixed Overhead Costs*	$2,400	$12,630	$39,800	$61,120
Amount of additional income to pay Fixed Overhead Costs*	N/A	N/A	$30,580 w/BLM $14,840 w/o	$44,240 w/BLM $5,075 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	N/A	N/A	$31,740 w/BLM N/A w/o	$47,630 w/BLM N/A w/o

** Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and extra-large ranches only.

Table 11a Southeast Region
Fallback Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	636	1,221	3,124	5,671	8,895
Percent BLM	44.97%	58.07%	45.01%	45.02%	44.98%
Gross Revenues*	$7,880	$18,520	$47,390	$95,500	$151,930
Gross Returns/AUM	$12.39	$15.17	$15.17	$16.84	$17.08
Variable Produc-tion Costs*	$7,320	$14,520	$37,830	$68,190	$114,330
Variable Produc-tion Costs/AUM	$11.50	$11.89	$12.11	$12.02	$12.85
Gross Margin/AUM	$.89	$3.28	$3.06	$4.82	$4.23
Fixed Overhead Costs*	$11,350	$21,780	$33,300	$43,680	$57,830
Financial Threshold for Production	570 w/BLM 40 AUMs w/o	770 AUMs w/BLM, 40 w/o	1,880 w/BLM 130 w/o	50+ AUMs	5,100 AUMs w/BLM 100 w/o
Financial Threshold for Risk	Not possible	Not possible	Not possible	Not possible	13,683 AUMs
Amount of additional income to pay Fixed Overhead Costs*	$10,780 w/BLM $6,620 w/o	$17,800 w/BLM $14,740 w/o	$23,740 w/BLM $10,070 w/o	$16,380 w/BLM $1,040 w/o	$20,235 w/BLM $0 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$11,410 w/BLM N/A w/o	$18,840 w/BLM N/A w/o	$26,390 w/BLM N/A w/o	$21,030 w/BLM N/A w/o	$25,575 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

Table 11b. Southeast Region
Fallback alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	579	1,079	2,843	5,160	8,095
Gross Revenues*	$7,170	$16,370	$43,130	$86,890	$138,260
Gross Returns/AUM	$12.39	$15.17	$15.17	$16.84	$17.08
Variable Production Costs*	$7,050	$13,430	$43,130	$63,750	$108,060
Variable Production Costs/AUM	$12.18	$12.44	$12.55	$12.35	$13.35
Gross Margin/AUM	$.21	$2.73	$2.62	$4.49	$3.73
Fixed Overhead Costs*	$11,350	$21,780	$33,300	$43,680	$57,830
Amount of additional income to pay Fixed Overhead Costs*	$11,220 w/BLM $6,620 w/o	$18,840 w/BLM $14,740 w/o	$25,840 w/BLM $10,070 w/o	$20,540 w/BLM $1,040 w/o	$27,630 w/BLM $0 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$11,850 w/BLM N/A w/o	$19,880 w/BLM N/A w/o	$28,490 w/BLM N/A w/o	$25,190 w/BLM N/A w/o	$32,970 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only. $35,670

Table 12a Southwest Region
Fallback Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	259	1,204	2,777	5,103	15,166
Percent BLM	63.32%	62.04%	63.03%	62.34%	62.34%
Gross Revenues*	$3,610[4]	$16,050	$37,660	$82,160	$244,170
Gross Returns/AUM	$13.94[4]	$13.33	$13.56	$16.10	$16.10
Variable Production Costs*	$3,390	$17,415	$35,390	$75,980	$219,830
Variable Production Costs/AUM	$13.08	$14.46	$12.74	$14.89	$14.50
Gross Margin/AUM	$.86[4]	($1.13)	$.82	$1.21	$1.60
Fixed Overhead Costs*	$2,570	$11,940	$32,740	$42,670	$126,820
Financial Threshold for Production	190 AUMs w/BLM 12 w/o	Not possible w/BLM 2nd 260 w/o 1st 35-146 w/o	2,460 w/BLM 2nd 456 w/o 1st 25-246 w/o	4,390 w/BLM 2nd 1100+ w/o 1st 15-597 w/o	12,300 w/BLM 1000+ w/o
Financial Threshold for Risk	Not possible	Not possible	Not possible	Not possible	Not possible
Amount of additional income to pay Fixed Overhead Costs*	$2,350 w/BLM $755 w/o	N/A w/BLM $9,450 w/o	$23,480 w/BLM $24,350 w/o	$36,500 w/BLM $28,740 w/o	$102,480 w/BLM $78,200 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$2,740 w/BLM N/A w/o	N/A	$24,780 w/BLM N/A w/o	$39,050 w/BLM N/A w/o	$107,780 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

[4]Based on feed program payment of $.47/AUM

Table 12b. Southwest Region
Fallback alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	226	1,055	2,421	4,467	13,275
Gross Revenues*	$3,150	$14,065	$32,830	$71,920	$213,730
Gross Returns/AUM	$13.94	$13.33	$13.56	$16.10	$16.10
Variable Production Costs*	$3,125	$16,095	$32,705	$71,350	$206,060
Variable Production Costs/AUM	$13.82	$15.25	$13.51	$15.97	$15.52
Gross Margin/AUM	$.12	($1.92)	$.05	$.13	$.58
Fixed Overhead Costs*	$2,570	$11,940	$32,740	$42,670	$126,820
Amount of additional income to pay Fixed Overhead Costs*	$2,545 w/BLM $755 w/o	N/A	$25,620 w/BLM $24,350 w/o	$42,100 w/BLM $28,740 w/o	$119,150 w/BLM $78,200 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$2,935 w/BLM N/A w/o	N/A	$26,920 w/BLM N/A w/o	$44,650 w/BLM N/A w/o	$124,450 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

Table 13a. Central Mountain Region
County Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch
Typical Ranch AUMs*	636	1596	3408	5826
Percent BLM	26.73%	11.78%	20.98%	20.01%
Gross Revenues*	$12,370	$35,890	$75,790	$133,010
Gross Returns/AUM	$19.45	$22.49	$22.24	$22.83
Variable Production Costs*	$10,790	$25,380	$43,380	$70,000
Variable Production Costs/AUM	$16.96	$15.90	$12.73	$12.02
Gross Margin/AUM	$2.49	$6.59	$9.51	$10.82
Fixed Overhead Costs*	$11,350	$16,670	$38,030	$62,010
Financial Threshold for Production	250 AUMs	510 AUMs	375 AUMs	750 AUMs
Financial Threshold for Risk	Not Possible	Not Possible	4,000 AUMs	7,600 AUMs
Amount of additional income to pay Fixed Overhead Costs*	$9,800 with BLM permit, $7,900 w/o permit	$6,150 with BLM permit, $2,200 w/o permit	$5,600 with BLM permit, $4,000 w/o permit	$0 with BLM permit, $7,300 w/o permit
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$10,400 with BLM permit, N/A w/o permit	$6,900 with BLM permit, N/A w/o permit	$6,750 with BLM permit, N/A w/o permit	$0 with BLM permit, N/A w/o permit

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and large ranches only.

13b Central Mountain Region
County Alternative with a 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch
Typical Ranch AUMs*	602	1558	3265	5593
Gross Revenues*	$11,710	$35,040	$72,610	$127,690
Gross Returns/AUM	$19.45	$22.49	$22.24	$22.83
Variable Production Costs*	$10,450	$25,090	$42,100	$68,000
Gross Margin/AUM	$2.09	$6.41	$9.35	$10.67
Fixed Overhead Costs*	$11,350	$16,670	$38,030	$62,010
Amount of additional income to pay Fixed Overhead Costs*	$10,100 with BLM permit, $7,900 w/o permit	$6,700 with BLM permit, $2,200 w/o permit	$7,500 with BLM permit, $4,000 w/o permit	$2,300 with BLM permit, $7,300 w/o permit
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$10,750 with BLM permit, N/A w/o permit	$7,450 with BLM permit, N/A w/o permit	$8,650 with BLM permit, N/A w/o permit	$3,150 with BLM permit, N/A w/o permit

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and large ranches only.

Table 14a Northwest Region
County Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	249	1,309	3,616	7,880
Percent BLM	68.20%	46.79%	26.22%	22.79%
Gross Revenues*	$4,570	$24,010	$71,810	$161,150
Gross Returns/AUM	$18.37	$18.34	$19.86	$20.45
Variable Production Costs*	$3,610	$22,100	$47,060	$109,185
Variable Production Costs/AUM	$14.51	$16.88	$13.01	$13.86
Gross Margin/AUM	$3.86	$1.46	$6.85	$6.59
Fixed Overhead Costs*	$2,400	$12,630	$39,800	$61,120
Financial Threshold for Production	135 w/BLM 10 AUMs w/o	1,060 w/BLM 345 w/o	100+	1,000+
Financial Threshold for Risk	622+ AUMs	Not possible	Not possible	2,275 +
Amount of additional income to pay Fixed Overhead Costs*	$1,440 w/BLM $1,685 w/o	$10,720 w/BLM $8,270 w/o	$15,040 w/BLM $14,840 w/o	$9,160 w/BLM $5,075 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$1,770 w/BLM N/A w/o	$11,545 w/BLM N/A w/o	$16,200 w/BLM N/A w/o	$12,550 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and extra-large ranches only.

Table 14b. Northwest Region
County alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	215	1,187	3,426	7,521
Gross Revenues*	$3,950	$21,770	$68,040	$153,800
Gross Returns/AUM	$18.37	$18.34	$19.86	$20.45
Variable Production Costs*	$3,340	$20,960	$45,875	$107,270
Variable Production Costs/AUM	$15.52	$17.66	$13.39	$14.26
Gross Margin/AUM	$2.85	$.68	$6.47	$6.19
Fixed Overhead Costs*	$2,400	$12,630	$39,800	$61,120
Amount of additional income to pay Fixed Over-head Costs*	$1,790 w/BLM $1,685 w/o	$11,820 w/BLM $8,270 w/o	$17,630 w/BLM $14,840	$14,590 w/BLM $5,075 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$2,120 w/BLM N/A w/o	$12,645 w/BLM N/A w/o	$18,790 w/BLM N/A w/o	$17,980 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium and extra-large ranches only.

Table 15a Southeast Region
County Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	636	1,221	3,124	5,671	8,895
Percent BLM	44.97%	58.07%	45.01%	45.02%	44.98%
Gross Revenues*	$11,100	$24,540	$68,600	$125,780	$200,050
Gross Returns/AUM	$17.45	$20.10	$21.96	$22.17	$22.49
Variable Production Costs*	$7,160	$13,710	$34,890	$63,430	$102,320
Variable Production Costs/AUM	$11.26	$11.23	$11.17	$11.18	$11.50
Gross Margin/AUM	$6.19	$8.87	$10.79	$10.99	$10.99
Fixed Overhead Costs*	$11,350	$21,780	$33,300	$43,680	$57,830
Financial Threshold for Production	350 w/BLM 40 AUMs w/o	512 w/BLM 40 w/o	130+	50+	100+
Financial Threshold for Risk	Not Possible	Not possible	3,086+	3,976+	5,264+
Amount of additional income to pay Fixed Overhead Costs*	$7,410 w/BLM $6,620 w/o	$10,955 w/BLM $14,740 w/o	$0 w/BLM $10,070 w/o	$0 w/BLM $1,040 w/o	$0 w/BLM $0 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$8,040 w/BLM N/A w/o	$11,955 w/BLM N/A w/o	$1,490 w/BLM N/A w/o	$0 w/BLM N/A w/o	$0 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

Table 15b. Southeast Region
County alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	579	1,079	2,843	5,160	8,095
Gross Revenues*	$10,100	$21,690	$62,430	$114,400	$182,060
Gross Returns/AUM	$17.45	$20.10	$21.96	$22.17	$22.49
Variable Production Costs*	$6,910	$12,715	$32,920	$59,290	$96,630
Variable Production Costs/AUM	$11.94	$11.78	$11.58	$11.49	$11.94
Gross Margin/AUM	$5.51	$8.32	$10.38	$10.68	$10.55
Fixed Overhead Costs*	$11,350	$21,780	$33,300	$43,680	$57,830
Amount of additional income to pay Fixed Overhead Costs*	$8,160 w/BLM $6,620 w/o	$12,810 w/BLM $14,740 w/o	$3,790 w/BLM $10,070 w/o	$0 w/BLM $1,040 w/o	$0 w/BLM $0 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$8,790 w/BLM N/A w/o	$13,810 w/BLM N/A w/o	$5,700 w/BLM N/A w/o	$0 w/BLM N/A w/o	$0 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

Table 16a Southwest Region
County Alternative

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	259	1,204	2,777	5,103	15,166
Percent BLM	63.32%	62.04%	64.03%	62.34%	62.34%
Gross Revenues*	$4,600[5]	$20,350	$47,960	$99,050	$303,170
Gross Returns/AUM	$17.77[5]	$17.90	$17.27	$19.41	$19.99
Variable Production Costs*	$3,320	$16,150	$33,580	$71,950	$206,635
Variable Production Costs/AUM	$12.82	$13.41	$12.09	$14.10	$13.62
Gross Margin/AUM	$4.95[5]	$3.49	$5.18	$5.31	$6.37
Fixed Overhead Costs*	$2,570	$11,940	$32,740	$42,670	$126,820
Financial Threshold for Production	155 AUMs w/ BLM 12 w/o	720 w/BLM 2nd 260-460 w/o 1st 35-146 w/o	1,280 w/BLM 2nd 450-999 w/o 1st 25-246 w/o	3,150 w/BLM 2nd 1,100-1,922 w/o 1st 15-597 w/o	7,870 w/BLM 1,000-5,712 w/o
Financial Threshold for Risk	395+	Not Possible	Not Possible	6,190+	17,300+
Amount of additional income to pay Fixed Overhead Costs*	$1,290 w/BLM $755 w/o	$7,750 w/BLM $9,450 w/o	$18,370 w/BLM $24,350 w/o	$15,570 w/BLM $28,740 w/o	$30,290 w/BLM $78,200 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$1,680 w/BLM N/A w/o	$8,340 w/BLM N/A w/o	$19,670 w/BLM N/A w/o	$17,870 w/BLM N/A w/o	$35,290 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

[5] Based on Feed Program payment of $.47/AUM.

Table 16b. Southwest Region
County alternative with 20% BLM permit reduction

	Extra-Small Cow/Calf Ranch	Small Cow/Calf Ranch	Medium Cow/Calf Ranch	Large Cow/Calf Ranch	Extra Large Cow/Calf Ranch
Typical Ranch AUMs*	226	1,055	2,421	4,467	13,275
Gross Revenues*	$4,020	$17,830	$41,810	$86,700	$265,370
Gross Returns/AUM	$17.77	$16.90	$17.27	$19.41	$19.99
Variable Production Costs*	$3,065	$14,985	$31,130	$67,820	$194,350
Variable Production Costs/AUM	$13.56	$14.20	$12.86	$15.18	$14.64
Gross Margin/AUM	$4.21	$2.70	$4.41	$4.23	$5.35
Fixed Overhead Costs*	$2,570	$11,940	$32,740	$42,670	$126,820
Amount of additional income to pay Fixed Over-head Costs*	$1,620 w/BLM $755 w/o	$9,100 w/BLM $9,450 w/o	$22,060 w/BLM $24,350 w/o	$23,780 w/BLM $28,740 w/o	$55,800 w/BLM $78,200 w/o
Amount of additional income to pay Fixed Costs if rancher pays cost of improvements	$2,010 w/BLM N/A w/o	$9,690 w/BLM N/A w/o	$23,360 w/BLM N/A w/o	$26,080 w/BLM N/A w/o	$60,800 w/BLM N/A w/o

* Based on ten-year-average budgets, with cost and revenue adjustments as a result of management changes, developed by John Fowler, Ph.D., and Nick Ashcroft. Includes owner salary for medium, large, and extra-large ranches only.

APPENDIX E
CUSTOM AND CULTURE

Early in the EIS writing process BLM committed to the counties and tribes of New Mexico that if they would submit a three page or less summary of their Custom and Culture, the BLM would utilize them in the EIS analysis and print them in an appendix of the EIS. Appendix E is composed of what was submitted word-for-word. The originals are available for review at the BLM New Mexico State Office.

Write-ups were received from the following:

Counties	Tribes
Catron	Navajo Nation
Chaves	Pueblo of Acoma
Curry	
Eddy	
Grant	
Hidalgo	
Lea	
Lincoln	
Luna	
Otero	
Rio Arriba	
Santa Fe	
Sierra	

By publishing these write-ups BLM is not endorsing the reports as valid, historically or legally accurate, or complete.

The Custom and Culture write-ups start in the following page of Appendix E.

Write-up	Page no.
Catron	E-2
Chaves	E-13
Curry	E-17
Eddy	E-18
Grant	E-21
Hidalgo	E-25
Lea	E-32
Lincoln	E-34
Luna	E-37
Otero	E-42
Rio Arriba	E-45
Santa Fe	E-49
Sierra	E-51
Navajo Nation	E-59
Pueblo of Acoma	E-62

CATRON COUNTY
CUSTOM AND CULTURE

The Definition of Custom & Culture in Catron County

Custom & Culture

The purpose of the custom and culture section of the comprehensive plan is to begin to define custom and culture as required by the National Environmental Policy Act (NEPA).

Among other things, NEPA requires:

It is the continuing responsibility of the Federal Government to use all practical means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans. functions, programs, and resources to the end that the Nation may-

(2) assure for all Americans safe, healthful, productive and aesthetically and culturally pleasing surroundings,...

(4) preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment which supports diversity and variety of individual choice.[1]

Culture, as used in NEPA, is defined as:

The body of "customary beliefs, social forms, and material traits[2] constituting a distinct complex of tradition of a racial, religious or social group"[3] --that complex whole that includes knowledge, belief, morals, law, customs, opinions, religion, superstition and an.

As stated in the above definition, culture includes custom.

"Custom" is defined by Black's Law Dictionary as:

A usage or practice of the people, which by common adoption and acquiescence, and by long and unvarying habit, has become compulsory, and has acquired the force of a law with respect to the place or subject matter to which it relates... An habitual or customary practice, more or less widespread, which prevails within a geographic or sociological area.[4]

Custom, as used in the context of the comprehensive plan, refers to land usages and practices that have "acquired the force of a tacit and common Consent." Such land uses and practices, livestock grazing, logging. and hunting, to mention just a few, are well established, readily identifiable, and are the foundation of Catron County's economy.

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[1] 42 U.S.C. §4331(b)(2),(4).

[2] *Webster's Ninth New Collegiate Dictionary*, 1991, p.314.

[3] *Webster's Ninth New Collegiate Dictionary*, 1991, p. 314

[4] *Black's Law Dictionary*, p. 348 (5th ed. 1979).

Common use and everyday experience teaches us that the words "custom" and "culture" are frequently interchanged. We often rely on just one of the two terms to convey the meanings of both. Yet, in very important ways, the individual meanings of “custom" and "culture" are quite different and are not so easily switched or substituted. Culture deals more with human activities and practices and the acceptance and adoption of those activities and practices as community norms. In many ways, culture is invisible, at least in the sense of not being immediately evident on the surrounding landscape. It pertains to what people believe and value and how they pursue and realize those beliefs and values. Custom, on the other hand, is the way that people implement their culture. It deals with the way that people traditionally use the land and its natural resources, make a living and act toward each other. Custom is the visible and tangible manifestation of the shared beliefs that binds a group of people into a community.

In Catron County, culture, in a very down to earth sense, comprises the shared values and beliefs that give guidance and meaning to the lives of local residents. These shared values and beliefs, including such traits as independence, egalite, self-sufficiency and devotion to family, work and the land, have their origins in religion, folk traditions and in the shaping influence of environment on the individual and community. Moreover, culture in Catron County includes the array of social standards and social institutions, from family ties, to kindly neighbors, to high school sports, to the county rodeo, that hold together and give common purpose and meaning to community life.

Of all the qualities of culture coloring the American experience, equality may be the most crucial.

> The principle of equality, which makes men independent of each other, gives them a habitat and taste for following in their private actions, no other guide than their own will. That complete independence, which they constantly enjoy in regard to their equals and in the intercourse of private life, tends to make them look upon all authority with a jealous eye and speedily suggests to them the notion and the love of political freedom. Men living at such times have a natural bias towards free institutions. Take any one of them at a venture and search if you can his most deep seated instincts, and you will find that, of all governments, he will soonest conceive and most highly value that government whose head he has himself elected and whose administration he may control.[5]

Culture is a people's identity and the foundation upon which political society and an economy are built. Without culture, without commitment to democracy, devotion to equality, and celebration of political freedom, the people of Catron County would be something less than what de Tocqueville defined to be American. The citizens of Catron County are inseparable from their culture. They are, first and foremost, Americans with a deep-seated commitment to democracy, equality and political freedom. They are also unique products of the complex Web of land uses and practices, values and beliefs that nurture their communities, sustain their economies, empower their local government, and give form and -shape to their spiritual and physical environments. Stripped of their land use practices and usages, denied their values and beliefs, they would lose coherence as a people. If stripped and denied of their private property rights, their equitable estates on federal lands, their right to practice self-rule, to pursue equality and to live and practice the challenge of political freedom, they would lose the very essence of what it means to be American: To be sovereign in one sown land; to be filly equal in matters of power; and to be the final beneficiaries of political freedom.

The Native American roots of culture and custom are the oldest in New Mexico. In 1598, Juan de Onate laid the foundation for permanent Spanish settlement in New Mexico. Spanish institutions exerted a profound influence on New Mexicans who would live under Spanish and Mexican law for two hundred fifty years before becoming part of the United States, an additional and profound influence creating the customs and culture of Spanish and Mexican people living in New Mexico was the Roman Catholic Church. The Church provided these people with their religious values, family structures and sense of community.

Kearny's Code-Protection of Existing Customs & Culture

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[5]de Tocqueville, Alexis, *Democracy in America*, Vol. II, New York: Random House, p. 304.

In 1846, General Kearny took possession of New Mexico, imposed martial law and established a code of conduct which would become known as Kearny's Code. Within the context of this Code, he recognized the existing culture and custom of the area and pledged to the inhabitants, as citizens of a Territory of the United States, that the Army would protect and defend these customs and cultures. Kearny's Code remains part of the statutory law of the State of New Mexico today.

In addition to the culture described above, perhaps the most important custom which would be protected under the Kearny Code was the right of private property ownership. Prior to the imposition of Martial Law, title to private property could only be acquired through permission of the Spanish King, the Mexican government or their representatives. To acquire title under Spanish or Mexican law, the citizen or settler first had to request permission of the King or government. Once that permission was acquired, the settler was allowed to enter the property, then occupy and improve that property. These requirements of occupancy and improvement came to be known as public good and public weal. As described by J. Brocchus in his dissenting opinion in Pino v. Hatch. (Sup. Ct. Jan. 1855), "[t]hose uses were the cultivation of the soil, the pasting of flocks, the promotion and encouragement of industrial pursuits, and in general such purposes as looked to the settlement of the uninhabited portions of the province. the enhancement of the value of the soil, the development of the resources of the country, and the promotion of the public good.

Public weal was defined in much the same manner as public good. In that same opinion, J. Brocchus describes "public weal" as public good with an additional requirement of "the enhancement of the value of the adjacent lands belonging to the public domain."

After four years of land occupancy and creating public good and public weal, the settler could then apply for land title. Once the King's or government's representative was ensured that the requirements of occupancy, public good and public will were satisfied, the King or government granted title to the requesting party.

Another way that title could be acquired was a grant by the Spanish or Mexican government for services rendered such as for assuming responsibility for defense against nomadic Indians or for "peopling" or developing the tracts in question. Although the acquisition of lands by grant from the King or government came to an end with the signing of the Treaty of Guadalupe Hidalgo in 1848, the custom of occupancy and creating public good/public weal did not. These concepts carried through to the American concept of preemption. Under preemption, the settler was also required to hold the land by occupancy, then create "public good" and "public weal" before he could acquire title.

Although Congress questioned the Kearny Code as evidenced by a Resolution sent to President Polk, the President rebuffed Congress and "..justified the general's actions as extending to these people those rights which were so cherished in the United States..."

Treaty of Guadalupe Hidalgo----Protection of Existing Property Rights, Culture, and Customs

With the signing of the Treaty of Guadalupe Hidalgo, which ended the Mexican-American War, in 1848, the New Mexico Territory was Formally ceded to the American Government. The terms of the Treaty explicitly specified that any property right, culture and custom which had been recognized by the Spanish or Mexican governments before the lands were ceded to the United States would continue intact and be honored and protected by the United States.

After the arrival of Kearny, the ceding of New Mexico to the United States and the establishment of Kearny's Code, the third dominant culture was introduced to New Mexico when an immigration, consisting largely of Scottish American merchants, miners, ranchers, skilled workers and freighters came to the Territory, married local Spanish/Mexican women and became integrated into the now Hispanic-American community. This Hispanic-American influence is still the most distinguishing contributor to the culture and custom in New Mexico.

Today, the Scot-Irish contribution to the culture of Catron County is largely that of the border estate between Scotland and England.

> The border derived its cultural character from one decisive historical fact, For seven centuries, the Kings of Scotland and England could not agree who owned it... From the year 1040 to 1745, every English monarch but three suffered a Scottish invasion, or became an invader in his turn... This incessant violence shaped the culture of the border region...
>
> To the first settlers, the American back country was a dangerous environment, just as their British borderlands had been. The borders were more at home than others in this anarchic environment, which was well suited to their family system, their warrior ethics, their farming and herding economy, their attitudes toward land and wealth and their ideas of work and power. So well adapted was the border culture to this environment that other ethnic groups tended to copy it.[6]

The Custom of Livestock Grazing in Catron County

The Development of Equitable Estates for Grazing on Federal Lands (Adapted from the Catron County Comprehensive Land Use and Policy Plan, Part II, Chapter 2, pp.2-5 to 2-14)

Scot-Irish, Mexican, & Spanish Influence on Catron County's Land Use Practices

There is no question that the culture of the Scot-Irish Mexican and Spanish people living in Catron County have shaped the land use practices, customs and economy of the area. With regard to livestock grazing, these customs were also influenced by the local environment. As the local residents will attest the environment in Catron County for grazing livestock is harsh. The weather is hot, the rainfall is sparse and it is difficult to work the soil to grow crops on anything but lands subject to irrigation. Because of these "abnormal conditions" when compared to lands east of the 30th meridian, it takes a great deal of land to sustain even a modest size herd of livestock. These environmental factors shaped the custom of livestock -grazing in Catron County.

As stated above, land acquisition under the governments of Mexico and Spain came from grants by the King of Spain or the Government of Mexico. However, because of environmental factors described above, that grant of land was normally not enough to sustain a herd of livestock. Therefore, in addition to the use of his property, the Spanish or Mexican citizen also used the other unclaimed lands belonging to the government, in connection with his private property, to sustain his herd, his way of life and to perpetuate community stability.

In New Mexico, the development of livestock grazing under the American system paralleled, intertwined and emulated the Spanish and Mexican custom of using the unclaimed public domain. Under the American system, although a settler could make a good living on 160 or 640 acres of homestead lands east of the 30th meridian, the same could not be said in Catron County. As the Spanish and Mexican citizens had discovered, the environment in New Mexico required more land for grazing than could be granted to the settler. As such, a parallel custom, learned from the Spanish and Mexican settlers, became the American custom. Allowing livestock to graze on the unclaimed public domain became the norm.

Encouragement of Livestock Grazing to Assist in Populating the West

Not only was the grazing of livestock on the unclaimed federal lands the custom in Catron County, the practice was encouraged by the United States Presidents and by the Army who wished to quickly settle and occupy these lands for the United States. There were three major reasons that American settlers and pioneers were

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[6]Fischer, David Hackett, *Albion's Seed, Four British Folkways in America*. Oxford, 1989.

desperately needed to quickly settle the New Mexico territories:

1. Concern that a Foreign power would take control of these lands by occupancy.

2. The problem of securing the land from hostile Indian tribes.

3. The protection of the public traveling across the continent.

Concern That a Foreign Power Would Take Control or These Lands by Occupancy.

Many American Presidents were afraid that, unless the New Mexico territories were populated and settled by citizens loyal to the United States, a foreign power would take control of these lands by occupancy. Even though, the Treaty of Guadalupe Hidalgo had ended the war with Mexico, the American Presidents wanted to be sure that these newly acquired lands would be populated with citizens loyal to the United States. As President Polk explained in 1847:

> Mexico is too feeble a power to govern these Provinces, lying as they do at a distance of more than 1000 miles from her capital, and if attempted to be retained by her they would constitute but for a short time even nominally a part of her dominions...
>
> The sagacity of powerful European nations has long since directed their attention to the commercial importance of that Province, and there can be little doubt that the moment the United States shall relinquish their present occupation of it and their claim to it as indemnity an effort would be made by some foreign power to possess it, either by conquest or purchase. If no foreign government should acquire it in either of these modes, an independent revolutionary government would probably be established by the inhabitants and such foreigners as may remain in or remove to the country as soon as it shall be known that the United States have abandoned it. Such a government would be too feeble long to maintain its separate existence, and would finally become annexed to or be a dependent colony of some more powerful state. ..no foreign power shall without our consent be permitted to plant or establish any new colony or dominion on any part of the North American continent...
>
> The Provenances of New Mexico and the Californias are contiguous to the territories of the United States, and if brought under the government of our laws their resource---mineral, agricultural, manufacturing, and commercial---would soon be developed.[7]

Securing the Land From Hostile Indian Tribes

In addition to the concern over the use of Foreign powers on American soil, the Congress and the Presidents also Faced the problem of securing the land from hostile Indian tribes. When President Zachary Taylor received the helm of the nation, he focused on occupying and controlling the southwest region because of her great agricultural and mineral wealth. However, as he soon discovered, the Southwest was not easily controlled because of its numerous Indian tribes.

President Millard Fillmore also faced problems with the warring Indian tribes in the Southwest. In his third address to the Nation, he stated:

> Every effort should-be made to protect our frontier and that of the adjoining Mexican States from the incursions of the Indian tribes, of about 11,000 men of which the Army is composed, nearly 8,000 are employed in the defense of the newly acquired territory (including Texas) and of the emigrants proceeding thereto. I am gratified to say that these efforts have been usually successful. With the exception of some partial outbreaks in California and Oregon and occasional depredation on a portion of the Rio Grande,

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[7]Polk, James K, *IV Messages and Papers of the President*, 1847. New York, 1897, pp. 539-540.

> owing, it is believed, to the disturbed state of that border region, the inroads of the Indians have been effectually restrained.[8]

Fillmore also continually reminded Congress that the Treaty of Guadalupe Hidalgo also required the United States to protect the Mexican Frontier. Although Fillmore was able to convince Congress to appropriate larger regimes of the cavalry to the Southwest, he also recognized that the best protection against hostile Indians was to increase permanent settlements.[9]

Protection of the Public Traveling Across the Continent

The government wanted to colonize the West as quickly as possible far the protection of the public traveling across the continent. As stated by President Polk:

> For the protection of emigrants while on their way to Oregon against the attacks of the Indian tribes occupying the country through which they pass, I recommend that suitable number of stockades and blockhouse forts be erected along the usual route between our frontier settlements on the Missouri and the Rocky Mountains, and that an adequate force of mounted riflemen be raised to guard and protect them on their journey...[10]

Protection of the Customs, Cultures & Property Right of Those Already Living in the New Mexico Territories

After recognizing the difficulties of life in the southwest and the importance of keeping those lands for the United States, the Congress and presidents would face the problem of determining (1) how the land would be secured for those already living in the Southwest and (2) how the land would be transferred to those moving to the Southwest. With regard to those already occupying the land, the answer to the question would be contained in "local law" and an international treaty.

As stated above, Kearny's Code and the Treaty of Guadalupe Hidalgo guaranteed the protection of the customs, cultures and property rights of those already living in the New Mexico territories. Because many of these settlers had already acquired property titles and additional property use rights from the Spanish or Mexican governments or by occupancy and the promotion of the public good and the public weal, those rights would be protected and honored by the United States government under the treaty and Kearny's Code. Such protection also extended to those land use rights which were not codified by legal title because of the promise to protect local custom. The Treaty of Guadalupe Hidalgo and Kearny's Code even extended the protection of property and land use rights as those uses passed from buyer to seller and from generation to generation.

With regard to the people who were induced by the American government to go to the Southwest to make their fortune, Congress and the Presidents promised "liberal grants" of the land. As promised by President Polk:

> I recommend that the surveyor-general's offices be authorized to be established in New Mexico and California, and provision made for surveying and bringing the public lands into market at the earliest practicable period. In disposing of these lands, recommend that the right of preemption be secured and liberal grants be made to the early emigrants who have settled or may settle upon them [Emphasis added].[11]

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[8]Fillmore, Millard, *V Messages and Papers of the Presidents*, 1852. New York, 1879, p. 174.

[9]Fillmore, Millard, *V Messages and Papers of the Presidents*, 1850. New York, 1879, p. 87.

[10]Polk, 1845, supra, pp. 396-397.

[11]ibid.

In a separate address, President Polk stated:

> That it will ultimately be wise and proper to protect and make liberal grants of land to the patriotic pioneers who amidst privations and dangers lead the way through savage tribes inhabiting the vast wilderness intervening between our frontier settlements and Oregon. and who cultivate and are ever ready to defend the soil, I and fully satisfied. To doubt whether they will obtain such grants as soon as the convention between the United States and Great Britain shall have ceased to exist would be to doubt the justice of Congress.[12]

Along that same line, President Zachary Taylor told Congress in 1849:

> [I recommend] [t]hat commissions be organized by Congress to examine and decide upon the validity of the present subsisting land titles in California and New Mexico, and that provision be made for the establishment of offices of surveyor-general in New Mexico, California, and Oregon and for the surveying and bringing into market public lands in those territories. Those lands, remote in position and difficult to access, ought to be disposed of on terms liberal to all but especially to the early immigrants.[13]

President Fillmore also urged that Congress move swiftly to establish a commission to examine the validity of all the lands claims in New Mexico and California, since he viewed the uncertainty of those claims as retarding the settlement of the country. In his annual address in 1831, he again stressed the need to encourage settlement of the Territories:

> The agricultural lands [of the newly acquired Territories should, however, be surveyed and brought into the market with as little delay as possible, that the titles may become settled and the inhabitants stimulated to make permanent improvements and enter ordinary pursuits of life.[14]

Franklin Pierce followed President Fillmore to the White House. He also believed that agriculture development in the west and southwest was of the utmost importance. He urged that the lands be swiftly and inexpensively sold to those settlers who would develop the lands for agriculture purposes.[15]

President Ulysses Grant continued to encourage the movement west with promises of the acquisition of property:

> The opinion that the public lands should be regarded chiefly as a source of revenue is no longer maintained. The rapid settlement and successful cultivation of them are now justly considered of more importance to our well-being than is the fund which the sale of them would produce. The remarkable growth and prosperity of our new States and Territories attest to the wisdom of the legislation which invites the settler to secure a permanent home on terms within reach of all. The Pioneer who incurs the dangers and privations of a frontier life, and thus aids in laying the foundation of new commonwealths, renders a signal service to his county and is entitled to its special favor and protection. These laws secure that object and largely promote the general welfare. They should therefore be cherished as a permanent feature of our land system.[16]

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[12]ibid

[13]Taylor, Zackary, *V Messages and Papers of the Presidents*: 1849. New York, 1897, p. 20.

[14]Fillmore, Millard, *VI Messages and Papers of the Presidents*: 1851. New York, 1897, p. 127.

[15]Pierce, Franklin, *VI Messages and Papers of the Presidents*, 1853. New York, 1897, p. 2749.

[16]Grant, Ulysses, *IX Messages and Papers of the Presidents*, 1853. New York, 1897, pp. 110-111.

While honest settlers and pioneers hastened west turning barren wasteland into productive farms and ranches, other not so honest and productive citizens also ventured west to attempt to make a fast fortune. Such stories of the graft and corruption of land speculators who would move into an area to deplete the timber and other resources then move on without purchasing or replenishing the land so that it would be suitable for use by permanent settlers caused Congress, in 1891, to alter it policies in an attempt to ensure that the honest settler would continue to build the American west. First, Congress permanently repealed the preemption acts and second, Congress added an amendment to the appropriations bill allowing the president to set aside “national Forest lands" or forest reserves.

Protection of the Rights of Livestock Operators Using the Forest Reserves

Even after the creation of the forest reserve system, **the importance of the use of the unclaimed federal lands for livestock grazing was recognized and protected**. As stated in the official annual report of the Secretary of the Interior in 1891, "One striking difficulty in establishing the reservations [forest reserves] themselves may be found in the fact that much of that land that should be reserved is as yet unsurveyed; other parts are subject to prior rights, or are expected to be included in railroad grants."[17]

Although the creation of the forest reserves or national forests had a very rocky start, livestock grazing was always part of the use of those lands. In fact, the Department of the Interior immediately began to adopt policies to protect the rights of livestock operators using the forest reserves. Those policies:

1. Encouraged the rancher to develop improvements to enhance the productivity of the Forest reserves.

2. Allowed title to remain with the Forest Service so that those lands suitable for private settlement would only be taken if such settlement did not interfere with the livestock owners grazing rights.

3. Allowed the states to collect taxes from the use of the federal lands to be used for the development of water resources.

4. Encouraged cooperative projects between the Department of the Interior and the individual livestock producer to better the land for livestock grazing.[18]

The Secretary of the Interior also established rules and regulations to implement the will of Congress in creating the forest reserves and to protect the prior rights of those within the borders of the reserves. The first regulations allowing the continued use of the forest reserves acknowledged the Spanish custom of allowing local ranchers to have first priority for use of the public lands. As described by the Secretary of the Interior in 1902.

Applicants for the grazing privilege are given preference in the following order:

(a) Persons residing within the reserve.

(b) Persons owning ranches within the reserve, but not residing thereon.

(c) Persons living in the vicinity of the reserve owning what may be called neighboring stock.

(d) Persons living at a distance from the reserve who have some equitable claim to use the reserve.

Class (b) under paragraph 16 should not be construed so as to allow large stock owners to obtain the preference therein given, by simply buying or obtaining small ranches inadequate for their

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[17] *Department of Agriculture Annual Report to Congress 1891*, Washington: Government Printing Office, p. 226.

[18] *Report of the Secretary of Agriculture, 1891.* Washington, Government Printing Office, 1892.

business. This will not be tolerated.[19]

Although these regulations initiated a good start in the recognition of the prior rights on the Federal lands, further progress in the recognition of these rights was made during the 1905 Denver meeting between the Forest Service and stockmen. During this meeting, the following report was made:

> The main points of agreement, worked out by the department and stock organizations, emphasized that those already grazing in the forest ranges would be protected in their priority of use [Law of Occupancy and Prior Appropriations Doctrine: that reductions in the number of grazed stock would be imposed only after fair notice; that small owners would have preference over large; that only in rare circumstances would the department seek total exclusion of stock from the forest; and that the policy of use would be maintained wherever it was consistent with intelligent forest management. Finally, some attempt would be made to give stockmen a voice in making the rules and regulations for the management of stock on local ranges through the establishment of forest advisory boards.[20]

In 1906, the above agreement was codified into regulation by the Forest Service "The Use Book." Those regulations permanently allocated grazing on the federal lands in the following manner:

Applicants for grazing permits will be given preference in the following order:

(a) Small nearby owners.
Persons living in or close to the reserve whose stock have regularly grazed upon the reserve range and who are dependent upon its use,

(b) All other regular occupants of the reserve range.
After class- (a) applicants have been provided for, the larger nearby owners will be considered but limited to a number which will not exclude regular occupants whose stock belong or are wintered at a greater distance from the reserve.

(c) Owners of transient stock.
The owners- of stock which belong at a considerable distance from the reserve and have not regularly Occupied the reserve range.

Priority in the occupancy and use of the range and the ownership of improved farming land in or near the reserves will be considered, and the preference will be given to those who have continuously used the range for the longest period.

It was by this system and the recognition of the long-standing use of the federal lands that created the permit and preference right system used by the Forest Service and Bureau of Land Management today.

Equitable Estates for Livestock Grazing on "Federal Lands

After considering the Spanish and Mexican customs and culture as protected by Kearny's Law and the Treaty of Guadalupe Hidalgo, the promises made to the settlers and pioneers by the American presidents and Congress and the efforts made to protect and continue livestock grazing even after the creation of the Forest reserves, the question to be answered by this comprehensive plan is whether those events have legal significance today. The answer to that question is YES.

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[19] *Forest Reserve Manual*. Washington: Government Printing Office, 1902.

[20] Hage, Wayne, *Storm Over Rangelands*, Bellevue: Free Enterprise Press, 1989, p. 161; Albert Potter, "Cooperation in Range Management," *American National Cattleman's Association Proceedings*, 16 (1913):55.

It follows, if a person follows the law, he has the benefit of the law. The settlers in the New Mexico territories in obeying the local laws and customs, relying on the promises of the U.S. presidents and obeying the rules and regulations required after the creation of the Forest reserves have earned an equitable estate for livestock grazing on public and Federal lands.

An equitable estate is a "right or interest in land, which not having the properties of a legal estate, but merely being a right of which courts of equity will make notice, requires the aid of such court to make it available. These estates consist of uses, trusts and powers."[21] In cases of "conflict" between an equitable right and a legal title, the courts will either suspend the enforcement of the legal title, "or decree that it [the legal title] shall be considered as held in trust for the benefit of the one having the equitable title. If equities are made out, the court will always require them to be satisfied before the legal title will be enforced."[22] [Emphasis added]. Actions to protect incorporeal rights are also within the jurisdiction of the equity court.[23] Equitable estate, according to Noah Webster's 1828 American Dictionary of the English Language, is "...The estate or interest of one who has a beneficial right in property, the legal ownership of which is vested in another..."

There are numerous reasons that the equitable estate in the federal lands created by Catron County's custom and culture, recognized by the presidents and Congress and originally protected and recognizably the U.S. Forest Service and Bureau of Land Management should remain in full force and effect today.

1. Livestock grazing on the unclaimed or federal lands is protected under Kearny's Code and the Treaty of Guadalupe Hidalgo. As described above, it was by Spanish and Mexican custom that a person grazing the unclaimed lands earned an equitable estate in that land. The extent or size of the equitable estate was determined by the amount of water owned by the settler. "A territorial statute of 15 February 1887 limited the cattle on a given range to the number which could be watered."[24]

2. The original Forest Service regulations sanctioning livestock grazing on the federal lands recognized and protected the grazer's right to use the federal lands. As stated above, only those livestock operators who could prove a prior use of the unclaimed lands, who had adequate water rights or "commensurate property" and who lived in or near the federal lands could acquire a grazing permit. The-fact that those grazing permits were originally taxed as private property further illustrates the Forest Service original intent of protecting livestock grazing on the forest reserves.

3. Even today, the Forest Service and the U.S. Army recognize the monetary value of a grazing permit. This is evidenced with the purchase of the Glenn Allotment by the New Mexico Department of Game & Fish and the condemnation proceedings by the U.S. Army when it acquired the grazing rights and the non-federal lands within the McGregor Range in southern New Mexico. The value placed on the Glenn Allotment was determined by the Forest Service. This documentation can be referenced in the Glenn Allotment file, Gila National Forest. The McGregor Range history is documented in a 1977 report from the Secretary of the Interior and the Secretary of Agriculture.[25]

4. The Internal Revenue Service (IRS) also recognizes a grazing permit on federal lands as a property right. In

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[21] *Bouvier's Law Dictionary*, p. 530, (1st. Ed. 1868).

[22] 27 *Am. Jur. Equity* § 64 (1966).

[23] ibid.

[24] Clark, Ira G., *Water in New Mexico*, Albuquerque: University of New Mexico Press, 1987, p. 147. (*NM Territorial Laws of 1889*, Ch. 61, pp. 126-27).

[25] "McGregor Range History", *Study of Fees from Grazing Livestock on Federal Lands*, A Report from the secretary of the Interior and The Secretary of Agriculture, Appendix C, Part 3(a), October 21, 1977.

Shufflebarger v. Internal Revenue Service. 24 T.C. 980 (1955), the Court held:

> That the grazing of livestock on national forests is to be regarded as a substantial, well-established, and indefinitely continuing pant of the national forests program, is not, according to our reading of the grazing regulations and the Forest Service Manual, open to question,... It seems to us abundantly clear that the statute and regulations contemplate that once the right to a fair and just allotment of grazing land has been acquired under the established procedures, that right, subject to some adjustment if it should become necessary for the protection of the range or for a more equitable distribution among preference holders, is to be regarded as an indefinitely continuing right, [emphasis added]

As determined by the IRS, that "indefinitely continuing right" is taxed upon the death of the owner for the fair market value of the permit. That value is based on the "animal unit" numbers or carrying capacity of the permit which is usually one third (l/3) of the value of the deeded lands.[26]

Equitable estates on federal lands are taxed by some of the western states. In California, grazing permits were recognized as equitable property rights in 1850, and are now taxed accordingly.

Summary-Federal Land Grazing Permits are an Equitable Estate.

Therefore, based on the customs and cultures of the people, the promises of the presidents. the historical agreements made with the United States Forest Service, and the value of grazing permits as recognized by the Forest Service itself, the Internal Revenue Service and by some states, Catron County hereby recognizes that those federal land grazing permits acquired under proper authority to be an "equitable estate." "As such, these property rights shall have the Full protection of the Fifth and Fourteenth Amendments to the U.S. Constitution.

[26]IRS letter of July 31, 1990 to Dick Manning, rancher, IRS letter of August 25, 1988 to R.B. Tippeconnic, U.S. Forest Service; IRS letter of September 30, 1983 to Robert Hadley.

CHAVES COUNTY
CUSTOM AND CULTURE

A BRIEF HISTORY OF THE CUSTOM AND CULTURE OF CHAVES COUNTY, NEW MEXICO

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With the vast majority of the land in Chaves County not subject to irrigation for growing cultivated crops, it was perhaps inevitable that grazing would be the dominant agricultural activity in the area. The grazing of beef cattle provided the original economic base for the county and continues to constitute a major portion of the present-day economy.

The grazing business in the Pecos Valley started in the mid-1860's, when James Patterson and a few others worked cattle in the area. Also, Hispanic sheepherders lived along the Rio Berrendo. The documented history, however, starts with the blazing of the Goodnight-Loving Trail in 1866 by Charles Goodnight and Oliver Loving. At the invitation of beef contractors, they brought Texas longhorns to sell to the Federal Government for Navajo and Mescalero Apache Indians at the Bosque Redondo Reservation and for soldiers at Fort Sumner who guarded the reservation.

With later cattle drives, the Goodnight-Loving Trail was extended northward until it reached Denver and even Cheyenne. Goodnight found markets for his cattle not only at Indian reservations and Army posts, but also at mining camps and wherever cattlemen wanted to stock the ranges and start raising cattle. Loving died rather early in the operation.

In 1867, John S. Chisum, already a big operator in Texas, brought in his first herd. He and Goodnight entered into a partnership, which lasted from 1868 until 1871. Chisum's crews would round up the cattle in Texas and drive them to Bosque Grande on the Pecos, about 35 miles north of present Roswell, where Goodnight's crews would take over and deliver the herds to market. The men would then split the profits.

When John Chisum brought herds through present Chaves County, he picked out all of the best heifers and kept them to stock the range for about 150 miles from Fort Sumner south to the Texas line. He became a permanent resident of New Mexico in 1872, with his headquarters at Bosque Grande. In 1875, he moved to the head of the South Spring River a few miles southeast of Roswell, where he established the South Spring River Ranch. By that time, he was beginning to upgrade the quality of his cattle by importing registered Durham bulls. Estimates of his herds in the mid-1870's are as high as 80,000 head, which made Chisum the largest cattle producer in the United States at the time.

Chisum trail herds left the Pecos Valley year around, mostly for Indian reservations in Arizona Territory. After the railroad reached Las Vegas, N.M., in 1879, cattle could be trailed there for shipping. It was not until 1894 that the railroad was built to Roswell, and then it came from the south the wrong direction for efficient marketing of cattle. That problem was finally resolved when the railroad was extended to Amarillo in 1899 and connected with major lines.

In the early 1880's, J.P. white established the LFD Ranch at Bosque Grande and served as manager and partner with his uncle, Texas cattle baron George W. Littlefield. Soon many other cattle ranches were started in the area. Major cattle operations included the Cass Land and Cattle Co., which established a ranch in 1884 that came to be known after 1889 as the Bar V; it was located in the Cedar Canyon area, some 60 miles northeast of Roswell. On the Penasco, about 75 miles southwest of Roswell, the Champion Cattle Co., initiated the CA Bar Ranch in 1885. The

Diamond A Ranch on the Rio Hondo west of Roswell was an early ranch. Capt. J. C. Lea started the LEA Ranch northwest of Roswell in the 1880's; he brought the first sheep to the area in 1877.

Much of the early sheep raising in Chaves County was carried on by itinerant sheepmen who caused conflict with cattle ranchers in the 1880's by grazing their sheep on the public domain and watering them at private sources. As a result of overgrazing, a law was passed that required the flocks to move at least six miles per day. This helped some, but there were uncooperative sheepmen that would graze out three miles on one side of a stream, cross over and graze out three miles on the other side -- thus obeying the letter of the law. As a stabilized business, sheep raising in the Chaves County area traces from 1880 when J.M. Miller bought his first flock and established a ranch. Sheep ranchers began to improve the quality of their stock by bringing in fine breeding stock from the eastern U.S.

Ranches raising cattle, sheep, or both soon proliferated until they were too numerous to mention. One operation that should be acknowledged, however, was Slaughter's Hereford Home on the eastern outskirts of Roswell. Col. C.C. Slaughter, one of the largest of the Texas cattlemen, established a breeding operation around the turn of the century. Some of the most famous Hereford bulls in the world were located there, and they attracted cattle producers and livestock writers from far and near.

In the early years of the cattle grazing industry in Chaves County, the accepted practice was "open-range ranching" without fences. Each ranch owned or leased its own land, but cattle were allowed to range far over the public lands in the Pecos Valley. Cooperative roundups, typical of the West, were conducted a couple of times each year so the individual ranches could process or sell their stock. The first drift fences in the area were built in the early 1890's; but when government inspectors discovered that the fences were on federal land, they ordered their removal. Some fences could still be found, however, under the pretext of fencing public roads.

The livestock industry in Chaves County grew along with the population and economy. Like other grazing areas, it was affected by the blizzard of 1887, the Panic of 1893, the two world wars, the Great Depression, and other developments outside the area. In addition to cattle and sheep, mohair-producing Angora goats were brought in by some ranchers. An important national event that had a lot of local consequences was the passage of the Taylor Grazing Act of 1934. This law required ranchers to identify their boundaries and to erect drift fences, so there was much fence-building over the next twenty years. With fences, ranchers soon realized they would have to drill wells to provide water for their animals; the Taylor Act therefore resulted in a boom in water-well drilling. The fenced ranches not only made it possible to improve the quality and health of the livestock, but there was a similar improvement in the wildlife and in the range itself.

In the long run, grazing in the county prospered. For example, during the World War II era, the wool warehouses in Roswell shipped three to five million pounds of wool per year; State totals showed that the value of sheep and mohair exceeded the value of cattle. Chaves County became the leading county in New Mexico in sheep and wool production and one of the top counties for mohair and beef cattle production. Some of the world's best award-winning wool and mohair are produced in Chaves County. The advent of plastic pipe in the 1960's made it possible for ranchers to provide water sources for their livestock about every mile, making it unnecessary for the cattle and sheep to walk long distances to find water. Beef cattle grazing was complemented in the early 1900's by a few stock farms, in the 1960's and 1970's by several feedlots, and in the 1980's and 1990's by numerous dairies.

The production of sheep, wool, mohair, and grass-fed beef continue as mainstays of the economy of Chaves County, demonstrating that grazing - the original basis for the development of the area -- is still a major factor today in the economy and culture of the county. The array of businesses in Roswell and the area that cater to ranchers is some indication of the importance of ranching: livestock-trucking firms, veterinarians, ranch supply stores, wool/mohair warehouses, sales rings, etc. Sheep and cattle producers' organizations are also quite active in the Pecos Valley.

Continued demand for the products of the range ensures that grazing will continue to be the principal, most efficient use of the semi-arid lands of Chaves County. Ranch hands in the 1990's may ride the range in pickup trucks or all-terrain vehicles (ATV) addition to or instead of horses; ranchers may market their livestock via video-tapes over satellite television channels and other innovative techniques; but the basic functions of livestock production today

remain substantially the same as they have been for many decades.

BIBLIOGRAPHY

Adams, Clarence, and Brown, Tom. ***Three Ranches West***. New York: Carlton Press, 1972.

Bonney, Cecil. ***Looking Over My Shoulder: Seventy-five Years in the Pecos Valley***. Roswell, N.M.: By the author, 1972.

Brooks, Connie. ***The Last Cowboys: Closing the Open Range in Southeastern New Mexico, 1890's - 1920's.*** Albuquerque: University of New Mexico Press, 1993.

Clarke, Mary Whatley. ***John Simpson Chisum: Jinglebob King of the Pecos***. Austin: Eakin Press, 1984.

Crosby, Thelma, and Ball, Eve. ***Bob Crosby, World Champion Cowboy***. Clarendon, Tex.: Clarendon Press, 1966.

Dexter Old Timers. ***As We Remembered It.***

Dills, Lucius. ***Roswell, Some Facts and Observations Relative to Its Settlement and Early Growth.*** Roswell: Chaves County Archaeological and Historical Society, 1932.

Fleming, Elvis E., and Huffman, Minor S. (eds.). ***Roundup on the Pecos.*** Roswell: Chaves County Historical Society, 1978.

Fleming, Elvis E., and Williams, Ernestine Chesser. ***TREASURES OF HISTORY II: Chaves County Vignettes.*** Roswell: Chaves County Historical Society, 1991.

_____ ***TREASURES OF HISTORY III: Southeast New Mexico People, Places, and Events***. Roswell: Historical Society for Southeast New Mexico, 1995.

Fulton, Maurice G. ***Roswell in Its Early Years.*** Roswell: Jas. D. Shingle, 1963.

Hagerman Historical Society. ***Meeting the Train: Hagerman, New Mexico and Its Pioneers.*** Hagerman, N.M.: Hagerman Historical Society, 1975.

Haley, J. Evetts. ***George W. Littlefield Texan.*** Norman: University of Oklahoma Press, 1943.

Hinkle, James F. ***Early Days of a Cowboy on the Pecos.*** Roswell: First National Bank of Roswell, n.d. (Original 1937).

Hunt, Frazier. ***Cap Mossman, Last of the Great Cowmen.*** New York: Hastings House, 1951.

Kiasner, Lily Casey. ***My Girlhood Among the Outlaws.*** Tucson: University of Arizona Press, 1972.

Larson, Carole. ***Forgotten Frontier: The Story of Southeastern New Mexico.*** Albuquerque: University of New Mexico Press, 1993.

Murrah, David J. ***C.C. Slaughter: Rancher, Banker, Baptist.*** Austin: University of Texas Press, 1981.

Poe, Sophie. ***Backboard Days.*** Caldwell, Id.: Caxton Printers, Ltd., 1975.

Redfield, Georgia B. "History of the Cattle and Sheep Industry in Chaves County." Manuscript, 1939. Archives,

Historical Center for Southeast New Mexico, Roswell, N.M.

Shinkle, James D. ***Fifty Years of Roswell History, 1867-1917.*** Roswell: By the Author, 1964.

_____ ***Reminiscences of Roswell Pioneer Roswell:*** By the Author, 1966.

Stokes, Peggy L., et al. ***TREASURES OF HISTORY: Historic Buildings in Chaves County, 1870 - 1935.*** Roswell: Chaves County Historical Society, 1985.

Wallis, George. "Cattle Kings," ***New Mexico Magazine,*** June 1936.

Williams, Ernestine Chesser. ***Echoes Break the Silence: A Collection of Articles from New Mexico and Arkansas.*** Roswell, N.M.: By the Author, 1987.

CURRY COUNTY
CUSTOM AND CULTURE

Curry County

Curry County was carved from Roosevelt and Quay Counties in 1909. The forty by forty five mile stretch of land is a vast expanse of land that has become an agricultural oasis due to its underground water supply.

Cowmen became the first permanent settlers in present Curry County during the 1880's. The first influx of homesteaders started between 1901 and 1903 with the construction of the Belen cut-off by the Santa Fe Railroad in Curry County. The 250 mile-long rail line connect the Pecos Valley with the Northeast and enabled heavy freight trains to avoid the steep mountain grades of northern New Mexico. The railroad located its division point at Riley Switch, nine miles west of Texico. The Santa Fe Railroad had considered several other sites for the division point: Texico, the first town in present Curry County, Melrose, founded in 1906; Blacktower, also founded in 1916. Construction began on a roundhouse in Melrose but was terminated when a new Chief Engineer for the railroad decided that the new townsite of Clovis had better water and more reasonably priced land.

During the last territorial legislature assembly in 1909, House Bill No. 5 was presented. It proposed the creation of Curry County. Charles Scheurich, a resident of Clovis and a supporter of creating a separate county, went to Santa Fe to garner support for the creation of a new county. Through negotiations with senators from Roosevelt and Quay counties the boundaries of the new county were developed. The senator from Roosevelt County did not want to give up all the Santa Fe Railroad taxes on land through his county so he asked for about an eighteen mile stretch on the west. Hence, Roosevelt County now has a narrow panhandle in its Northwestern corner in which the Santa Fe Railroad passes. On the north, the senator had several communities which had always given him political support and he didn't want to give up those communities to a new county. That is the reason that the northern boundary is shaped like a stairstep. The creation of a new county received support from the Governor when Scheurich assured the Governor that the county would be named for him, Curry.

Curry County grew steadily from 1909 to 1949 as people continued to move to the area due to the railroad as well as the farming opportunities in the area. The second period of growth for the county began in early 1950s with the introduction of deep well irrigation and the reactivation of a World War II airfield located west of Clovis. Cannon Air Force Base was reactivated in 1951 due to the Korean conflict and became part of the Air Force's Tactical Air Command. Cannon has become an important part of the economic growth of Curry County. It contributes more than $50,000,000 annually to the local economy and one third the population of Curry County is comprised of military personnel and dependents.

The cattle industry, the county's first industry, continues to be an important source of revenue and 395,000 acres of rangeland and wheat pasture are still used for cattle. Agriculture contributes over $30,000,000 to the county's economy and has undergone massive changes since the 1950's. The railroad also continues to be a viable part of the economy with approximately 775 employees and contributes approximately $12,000,000 annually to the economy. The economy of Curry County continues to be stable and diversified.

The History of Curry County continues to play an important role in the economy. Those industries that were the cause of the creation of the county have endured.

The future economic development of the community will continue to depend upon agriculture, ranching and the development of new industry. Key to bringing in new industry will be the Clovis Community college. Learning institutions bring a vast array of opportunities to any community. The future of Curry County rests on the future generation that find challenge and opportunity in Curry County.

EDDY COUNTY

CUSTOM & CULTURE

Eddy County is located near the southeast corner of the state boarding Texas on the south. The Pecos River crosses the county from North to South and enters Texas at the lowest elevation in New Mexico, south of Carlsbad. The River has been dammed at several points in the county forming various reservoirs and lakes. Irrigation land (75,000 acres) in the Pecos Valley produces hay, cotton, chili and pecans but most of the county is semiarid brush and grassland suitable for cattle and sheep ranching. Mining of potash, oil and gas provides a significant source of income in the county.

Carlsbad is the most populous community and the county seat. The second largest city is Artesia. The Village of Loving is located in south Eddy County, to the southeast of Carlsbad and is a farming, ranching, and residential community. The Village of Hope is located in north Eddy County to the west of Artesia and is an agricultural community.

Four historic trails follow the Pecos River through Eddy County. The earliest of those is one blazed by the Spaniards in 1536. Apache Indians lived in the region at that time, and they found abundant game in the mountains and on the plains and many kinds of fish in the rivers. The Guadalupe mountains were where many of the Apache Indians were located at that time.

The Guadalupe Mountains are the southernmost extension of the Rocky Mountain range. Today, with a few exceptions, the entire area is part of the Guadalupe District of the Lincoln National Forest. There are many families engaged in the ranching industry in the southern Guadalupe Mountains.

In 1866 cattlemen found a virgin grassland lying westward between the Pecos and the highlands. The largest numbers of settlers arrived in the 1880's and 1890's. The county was organized in 1889 from a part of Lincoln County. Carlsbad was made the county seat in 1890.

In 1887 two brothers, by the name of Eddy, who had a ranch in the area of today's Carlsbad had found both funding and a place take a small ditch from the deeply cut Pecos. They and their ever increasing circle of partners soon extended both their plans and their dreams until they were attempting to bring ditch water to two hundred thousand acres along a hundred mile stretch of the river lying south from Roswell. It was the largest irrigation project that had ever been attempted in the United State. It relied on several dams and canal systems that were designed and created by the West's corps of railroad engineers since irrigation engineering did not exist yet.

In the late 1890's, after years of ups and downs with irrigated farming, ranching, again became for twenty years, the major economic support for the Pecos Valley, and the local economy swung with the frequent ups and downs of cattle and sheep prices. By this time, however, the successful drilling of stock wells had added the plains to the east as an additional large ranching area.

By 1903 guano was being taken from one tunnel of Bat Cave, today's Carlsbad Caverns. The claim would later be made that one hundred thousand tons were removed there. Most of the material was shipped to Arizona and California for use in the citrus groves. One of the guano miners was the Jim White who is credited with exploration of the scenic areas of the Bat Cave. In 1923, when the federal government declared the cave a national monument, it was a major coup for Carlsbad and Eddy County that the official name was shifted from Bat Cave to Carlsbad Cave and latter to Carlsbad Caverns. Tourism began to emerge as an additional mainstay in the local economy.

There is an eighty year history in the county of development of mineral resources. Oil was first discovered in today's Eddy County in 1913. Across the decades, the oil and natural gas extraction industries shifted through cycles of greatest and lesser expansion, having grown to be a more and more important part of the economy.
In 1925 a group that was exploring for oil discovered, instead the county's major potash deposits thirty miles east of Carlsbad. Potash has been a major source of funds for this county ever since. The more recent sulfur development south of Eddy County in Texas has also brought economic benefit to this area.

Carlsbad got its first major taste at the federal feed trough during World War II when an army airbase and bombardiers school were located on the southern outskirts of town. In the 1950's the federal government returned to the area to sink Project Gnome into the vast salt beds that underlie this part of the Permian Basin. The first major project in America's pursuit of peacetime uses for atomic energy, the 1961 detonation produced a ruptured chamber that left all of the planned experiments undone.

By the 1970's the federal government was again searching for a deep salt bed. Carlsbad launched a major effort to attract the Waste Isolation Pilot Project (WIPP) program a national radioactive waste depository, at about the same time county, state and federal officials were in Washington attempting to get federal construction of Brantley Dam on the Pecos River between Carlsbad and Artesia. Both efforts were successful. Carlsbad also boasts being the home of a state zoological and botanical garden, the Living Desert State Park. The recent discovery of the huge Lechuguilla Cave system immediately adjacent to Carlsbad Caverns is said to be even more spectacular than Carlsbad Caverns. So far, Lechuguilla Cave does not appear capable of development for public access.

Like Carlsbad, Artesia's history is rich in discovery. With the completion of the Pecos Valley Railroad in 1894, Artesia's first given name was Miller's Siding. The community had yet another name change when promoter Baldwin Stegman settled in Miller's Siding and married the famous cattleman John Chisum's niece Sallie Roberts. Together they established a post office, naming the town Stegman.

In 1903, the town adopted a new name, Artesia for it's Artesian wells. That same year, the Artesia Townsite company joined with the Artesia Improvement Company to drill the first Artesian well in the community. By November, a well 830 feet deep with a six inch casing was completed three miles outside of town making it the world's largest Artesian well at that time. The age of the big water well had come and each week saw a new well surpassing the last. From 1905 to 1907, the ample water for irrigation brought over 1,200 people to area farms.

1923-a record year for Artesia when two men from Robinson, Illinois hearing of the oil traces in the Artesian wells, brought a steam powered cable tool rig to drill for oil. After several dry holes, the oilmen were ready to pack up their drilling rig when Martin Yates II acquired state leases east of the Pecos River. Yates talked the two into drilling one more well which was more promising. The next well was gas, while not marketable then, supplied energy for equipment on future wells. By April of 1924, the company brought in well Illinois No. 3 which was the first producing well in New Mexico and the third in the oil-rich Permian Basin.

The next four decades were a period of steady growth for Artesia. Its agriculture production flourished with the ample water supply and great soil conditions. Oil and gas production and processing helped to meet the needs of an energy-hungry world.

Artesia lies within the heart of the Pecos basin with 45,000 of the counties 75,000 total acres of irrigated lands. Navajo Refining is one of the largest independent refinery's in the United States. Because of the discovery of gas in 1923, Artesia is also the headquarters for Yates Petroleum Corporation, also one of the largest independent oil and gas companies in New Mexico and the United States. The Federal Law Enforcement Training Center is a large training center for all branches of law enforcement from all over the United States.

Artesia Alfalfa Growers Association is the largest agriculture cooperative in New Mexico. Dairies and chile processing plants are also important economic components of Artesia and Eddy County.

Eddy County was built by people with dreams, courage and vision. The same still holds true today. Eddy County is

rich in history, natural resources and it's people. Agriculture, ranching and farming, founded Eddy County. Today those industries are still the anchor of the County along with the many other invaluable natural resources, and ever expanding industries.

GRANT COUNTY
CUSTOM AND CULTURE

GRANT COUNTY

CULTURAL AND HISTORICAL PREFACE

Grant County was created by the New Mexico Territorial legislature, January 30, 1868. The territory was taken from the western portion of Dona Ana County and was formerly part of the Republic of Mexico. The culture of Grant County has been influenced by both Mexico and the United States as reflected by the two languages that are widely spoken throughout the County-Spanish and English - and by cultures of the Native American peoples who populated the area prior to European settlement.

The area of New Mexico that became Grant County was home to ancient people for-thousands of years before historical records were kept. The Mogollon Culture which occupied the Mimbres Valley perhaps as early as 300 B.C. was the forerunner of the Mimbres Culture which flourished in the area for hundreds of years around 1000 A.D.

By the time Spanish explorers from Mexico reached the area in the 17th century, it was the homeland of nomadic Apache tribes. The fiercely independent Apache resisted settlement and fought to defend their homeland, first from the Spanish, and then the Mexicans, and later the Americans. Because of their familiarity with their natural environment and adaptability to use European weapons, the Apache slowed or stopped Mexican and American expansion until the late 1800's in the area that would later become Grant County. Although a settlement was established at Santa Rita in 1800, and Fort Bayard, Fort West, and Fort Mobane were built to protect the miners and pioneers from attack, the Apache remained a threat, even after permanent settlements were established at Pinas Altos, on the Mimbres at San Lorenzo, and in 1870 at La Cienega de San Vicente, which later became Silver City.

In 1879, Victorio, Chief of the Chihinne Apache, accompanied by his sister, Lozen, who the Apache believed to have the power to determine the precise location of the enemy, began a series of violent and successful raids that reportedly led to the death of 300 Mexican and American settlers within a 150 mile radius of Silver City.

In 1883, Judge McComas, a Grant County Commissioner, and his wife fell victim to the Apaches, while their young son Charlie was abducted. The massacre of the Marques family - father, mother, and three children - and further raids throughout the County, prompted the Grant County Commission to offer a $250 reward for each Apache scalp in 1886. A $500 bounty was offered for the scalp of Geronimo.

While the Apaches and the newcomers were often merciless toward each other, they sometimes spared the lives of children who were taken captive. Thirteen-year old Jimmy (Santiago) McKin was abducted from his home on the Mimbres by Geronimo and held seven months before being released to his father. Child abduction was not limited to the Apache. Mangas, the only son of the great Apache chief, Mangas Coloradas, was abducted by Anglos during the fight in which John Bullard was killed. After four years of living with various Anglo families in Grant County, the young chief was returned to the Apache where he became, like Geronimo, one of the strongest Apache leaders, completely dedicated to his people.

Indians were far from the only danger the early settlers faced. Life was hazardous; mining accidents and murder were common. Pine Cienega and the area around Mule Creek were home to a notorious band--of cattle rustlers, -- The Upper Mimbres was the headquarters for a band of Mexican cattle rustlers who reportedly robbed the Georgetown stage of a thousand dollars in cash. - The leader of the band, Pilar Perez, abducted a sixteen-year old girl, Petra Parra, after shooting a deputy sheriff. Petra testified against - Perez when he was captured,- - and then eloped with one Francisco Lara from Pinos Altos soon after marrying another man.

Tales of romance and adventure abound in Grant County. Henry McCarty lived for a time in Silver City where he was put in jail for robbing a Chinese laundry - the first in a career of crimes. Escaping through a chimney of the jail, McCarty left Grant County and went on to become a legend as Billy the Kid.

The Chinese, who served as cooks and launderers for the miners, formed a substantial community around Texas and Yankie streets in Silver City and farmed vegetables on a flat south of town known as Chinese gardens; while in Pinos Altos they occupied dugouts in the gulches around town. By 1879, the newspapers reported various opium dens operating all over Silver City and Pinos Altos.

The mining towns of Grant County were quite lively, filled-with saloons, gambling, and bordellos. At one time, there were nine saloons in Central and numerous "houses of ill repute" which served the soldiers of Fort Bayard. Kate W. Stewart emerged as an early leader among the women of "easy Virtue" in Silver City. The Silver City Enterprise reported that "there is no other town in the west where this class of humanity are shown as much liberty as in Silver City." Stewart's Texas St. house passed into the hands of Bessie Harper, who was destined to become a Silver City institution as was her successor, Mildred Cusey, who operated out of a building known as "Millie's" located at the site of the current Silver City Post office.

Much of the frontier spirit of Grant County still remains. The people of Grant County have always been determined to survive and maintain their way of life in spite of many obstacles, including the depletion of mineral ore and the eventual closure of most of the mines in Grant County. The independent nature of the County was evident in the "Grant County Rebellion". In 1876, the entire county threatened to secede from New Mexico and join Arizona, going as far as to frame their own "Declaration of Independence". While the "Rebellion" was unsuccessful, it brought new respect to Grant County from the northern "Santa Fe Ring", and a bill was passed that not only incorporated Silver City, giving the town such special privileges as assessing and collecting taxes, but it also granted the town the power to establish schools, which led to the formation of the first independent public school district in the territory.

More recently, the spirit of independence was exhibited by more than 100 miners and their wives who went on strike against the Empire Zinc Mine in Hanover on October 17, 1950, for equality in wages and benefits, and equality on the job. After the union was prevented from picketing by a Taft-Hartley injunction, the women and children took over the picket lines and refused to back down even after they had been incarcerate. The Empire Zinc Strike has become an inspiration for people everywhere who struggle for justice and equality.

From the earliest times in Grant County, strong, capable leaders have emerged to uphold the values and viewpoints of their people. - Mangas Coloradas and Cochise are two Apache chiefs who refused to be removed to a reservation, preferring to die in freedom than to live in captivity. N.Y. Ancheta was a successful merchant in Pinos Altos before he moved to the Mimbres where he established merchandising, milling, and ranching enterprises that were essential to the growth of San Lorenzo and San Juan. Elizabeth Warren owned and operated many successful businesses in Silver City. She hired M.R. Koehler, another woman, as the foreman for her contracting business. Dressed in their culottes and men's work shoes, Mrs. Warren and Miss Koehler were often seen on the streets showing their work crew of men how to pour cement. Rebecca Brewer, an African-American woman employed by Mrs. Warren as a concrete worker, owned virtually the entire east side of Silver City at one time. One of the more prominent citizens of Grant County, Mrs. Brewer was an acknowledged "curandera", or healer, and also a jailer. She was reported to be 104 years old at the time of her death in 1970.

Agriculture

Agriculture has been crucial to the residents of Grant County from the time when the Indians of the Mogollon Culture cultivated crops in the fertile flood plain of the Mimbres Valley, and hunted in the surrounding hills. The Mimbres Valley has continued to be the center of agricultural production in Grant County.

During the latter part of the 19th century, the Mimbres was heavily farmed in food crops such as corn, potatoes, and vegetables, with hay and alfalfa grown for livestock. Although fruit crops, such as apples, peaches and grapes were first planted in the 1870s, large commercial orchards of several thousand trees each were begun in the 1880s and 1890s. During the l920s large scale apple production was initiated in the valley by Grover McSherry of Faywood. The agricultural census figures estimate that there were 4,575 acres of improved farm land, comprising 68 farms in Grant County in 1880, reaching a peak in 1920 of 545 farms on 31,230 acres of farmland.

Apparently, the first purebred cattle were brought to Silver City from Missouri in the early 1870s by Harvey H. Whitehill. Starting with 15 Durham cows and 1 bull, Whitehill built up his - herd to 1,060 head within 10 years. Richard Hudson ran about 600 head of cattle near his Hot Springs resort in the late l870s. Hudson later became a leading member of several Territorial cattlemen's associations. On January 15, 1881, the Southwest Stockmen's Association was formed in Silver City to protect the stock of the membership, to curtail rustling, and to lobby for legislation beneficial to the industry.

Cattle companies formed and bought up large tracts of land to run their cattle on the open range. There were the Oak Grove Live Stock, Cuchillo Cattle, Old and New Mexican Ranch and Cattle and San Simon companies, all incorporated in the mid-l880s. Around 1883 Arron and Marion Lasater drove 2,000 head of cattle from Texas to the Big Gallinas near Sherman where they established the NAN Ranch. By l890, when they incorporated as the Victorio Land and Cattle Company, the group held most of the watering places between Silver City and the Mexican border.

The 1870s and 1880s was the era of the cattle baron, of which there is no better example than Tom Lyons. The L/C Ranch rose through the efforts of Lyons and Angus Campbell. The pair began to acquire land in the early 1880s for stockraising, starting with the Nogales Ranch on Duck Creek. By 1885 they had purchased 19 ranches on the Gila, and within five years owned "all the range from the mouth of Duck Creek to above Mule Springs, on both sides of the Gila, and every waterhole and meadow within a day’s ride."

Undoubtedly, the L/C Ranch was one of the truly great ranches of the West. At its height in the 1890s, Lyons controlled a million acre range carrying 60,000 head. Lyons dreamed of an operation that would make Grant County the biggest cattle market west of Kansas City. Lyons and Campbell improved methods of ranching and cattle breeding throughout Grant County. While Campbell developed extensive feed and water systems, complete with dams, reservoirs, and water tanks to irrigate acreage for food for both cattle and employees, Lyons set up wide-ranging distribution systems with commission houses, finishing pastures, and slaughter-houses in Denver and Los Angeles.

The L/C continued to be expanded until it resembled a self-sustaining feudal principality. The ranch employed 100 wagons, 750 riding horses, 400 work horses, 75 cowboys in season and 3-6 chuck wagons. The farming operations employed 100 Mexican families, most of whom came from Chihuahua. Being people of culture, Lyons and his wife had a well-stocked library, and held music and lavish entertainment at their ranch headquarters, which became a mecca for the famous and wealthy.

The 1880s witnessed a gradual transformation of the ranching industry from open range, with large unfenced expanses of land held through the Strategic ownership of water sources in the area, to the era of fixed ranches with fenced pastures owned or leased by companies. By the turn of the century, the industry was forced to reorganize on a smaller, more efficient scale. Grant County continued to lead the region in cattle production with some 198,519 head reported by the 1910 census.

As the population of Grant County grew, the amount of acreage used for agriculture decreased. In Grant County

today, there are 842,969 acres of deeded land in grazing, 2,721 acres of cultivated land, 200 acres of orchards, and 362 acres of vineyards. There is an estimated 55,000 head of cattle. The major crops continue to be alfalfa and apples.

HIDALGO COUNTY
CUSTOM AND CULTURE

Summary of the CUSTOM & CULTURE of the People of Hidalgo County

By: Parsifal Smith, Department of Cultural Studies, University of Arizona, Tucson, Arizona

Hidalgo County in southwestern New Mexico seems typical for this part of the Southwest: small communities tucked into the vast desert and oak-crowned hills, farms and ranches marking the little spots of human habitation outside the small towns. But the quiet of Hidalgo County, like other counties in America's rural west, belies the struggles taking place over the lands these peoples reside within. It is primarily a question of power and a response of resistance; a struggle between rural and urban values and, for many of the people in Hidalgo County, a question of freedom. All of this centers upon the land-- land that means a great many things to a great many people -- forming self and community identities in the same way the wind and rain and sun formed the lands that inspire the world to reach for their own piece of New Mexico's landscape. Through all of this --because all of this -- a picture of the cultures and lifeways within Hidalgo County articulate themselves in the resistance emerging from the complex gathering of desires. It is these lifeways and the cultures they have built that I strive to articulate through the voices of the residents in Hidalgo County, hoping that from a recognition of the customs and traditions inherent and inspired by the lifeways in Hidalgo County, any decisions made about the fate and direction of the land and people in Hidalgo County will keep foremost the desires of the peoples who live here now, for it is their lives that will surely be affected most.

People and the Concept of Place:

Whenever you sit down and talk with the people living in Hidalgo County you're likely to bear the word place come up in the conversation. On one hand, place can mean something very simple, a common reference to a certain space, nothing more or less. On the other hand, place is recognized by social scientists to express a person's relationship to home, community, and the land that surrounds them -- especially in rural areas like Hidalgo. Place, like landscape, is the:

> whole complex of cultural response such as memory, experience, values, evaluation, and judgment [which] arc present in the processes of cognition with the result being a construction of environment which is perhaps analogous to a map of a landscape: a representation but not the terrain itself.[27]

In other words, place holds a very personal, emotional and even spiritual meaning for people when they use the word in the context of the conversations recorded here in a cultural study of Hidalgo County. Place is inseparable from the person's own sense of self as well. The history of place being the history of a person: the site marking, creating, and encouraging his or her identity that, in turn, is transferred to and transforms into the identity and values of their community. Place, then, when used by the peoples I speak with in this study, should be recognized as an expression in many ways of the very heart, or essence of their lives. That is, not only will the word be pointing to specific geographic sites and features, but also to convey for these people a deep sense of commitment: of history, of complex cultural and family ties to the land they work with, the structures they call home. The communities they live within, and the ecology that has written the nature of their being inexorably into the land. It is for that reason that Daniel Kemmis, author and mayor of Missoula, Montana, suggests that for areas like Hidalgo County, there is:

> perhaps no better way to get a sense of what this place is than to ask why it (and not someplace else) became

[27] I.G. Simmons. Interpreting Nature: Cultural Constructions of the environment (London & New York: Routledge, 1993), 76.

> the last of that old frontier. There were good reasons that this dry, windy, cold, hot, remote region was so late in being settled. Those features still keep the region largely unpopulated. This in turn, preserves the sense that the land is dominant here - that this is a place of more land than people. It seems to come natural, then, that people tend to define themselves in terms of the land that surrounds them.[28]

There is a strong sense of the land in Hidalgo County, visibly worn into the features and words of the people here, whose small towns huddle in the midst of an ever present horizon and endless sky. It is this, sometimes overwhelming stretch of land that at once isolates and connects the people and towns to one another, forming throughout as a community of rural interest and rural values. In many ways, perhaps at the most fundamental level, values and the way people respond to differing values from their own, is a the crux of many of the problems counties like Hidalgo are confronting throughout the rural West. It is likely that very little will be achieved by such a study if an interested parties do not deal first with the issues of differing value-systems as well as understanding that the different values are not a result of generation alone, but of a new mind-set brought to rural areas from urban influences. As J. Kennedy explains, underlying:

> all this socio-political change is the shift in public land values of an American industrial nation that emerged from WWII to become an urban, post-industrial society in the 1970's. Much of the American public hold environmentally-oriented public land values today, versus the commodity and community economic development orientation of the earlier conservation era (1900- 1969).[29]

This is not suggest that the difference between rural and urban values is a generational one. People in general in Hidalgo, regardless of age, share the same outlook on the land and their relationship to it. Hidalgo, like most of rural America, aligns closely with the "earlier conservation era:" finding value in things like home, family, community -- those ideals that our urban residents are struggling mightily to regain. And it is these ideals that separate urban from rural identity for most of the people in Hidalgo. Residents of Hidalgo often remarked on this, with statements like:

> the values are different here -- that's why we moved here from California: the values are different from those in big towns. We're more family oriented.

The difference in values-systems between rural and urban peoples is recognized just as readily by those people Wallace Stegner calls “stickers”[30] people who have lived most or all of their lives in Hidalgo, sharing a sense of place and a connection with their community, enduring thick and thin to build a home for themselves and a place for others to come after them and continue the values that have made their communities strong. All of which begins with a history, a connection to a site through self and personal relations -- things that begin to imbue geography with history; turning land into landscape, site into place, peoples into communities. The kinds of people who have built what J. Kennedy calls.

> a region where family farms and a small-town, rural way of life have long been central to the resident's sense of identity and their vision of a good life.[31]

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[28] This is taken for Daniel Kemmis’ work Community and the Politics of Place, published by the University Of Oklahoma Press, 1990 (p 41). And although Kemmis is referring to the area in Montana, the sense of people and land and the last frontier are just as fitting to Hidalgo County.

[29] J.J. Kennedy, “Changing Social Values and Images of Public Rangeland Management” in Rangelands 17(4) August 1995.

[30] Wallace Stegner, The American West as Living Space (Ann Arbor: University of Michigan Press, 1987).

[31] Kemmis, 39.

It is this “vision of a good life" in which residents of Hidalgo share a well-formed sense of community -- a sense of their neighbors lives being closely connected to their own, and inspiring comments like:

> we have our own little Utopia down here... it's a small, tight-knit community where everyone belongs.

This is a strong statement, but not an isolated one. People in Hidalgo extend themselves to create a place where “everyone belongs" because it is central to the way in which people in Hidalgo County form their own sense of self and how, most often, they develop the values they carry with them throughout their life. The words above were echoed throughout my interviews with residents of the county as families and friends maintain close contact through the place “where everyone belongs” -- a place that nurtures, protects, and maintains the values and traditions that the lifeways have developed among the people here.

Americans, wherever they live, tend to regard rural people as honest, hard-working, self-reliant, and law-abiding individuals for whom the land is the generator of generations, valued for its beauty as well as for what it produces. Values most of us are familiar with and to which our nation's leaders so repetitively evoke to their own characters, can be found in abundance in the vast majority of the people one meets in Hidalgo County. It is not imposed nor affected, it merely rests on people's shoulders here like the guardian of our nation's fundamental values where, as William Cronon writes, it:

> continues to this day as a key element in the mythology and idealogy of American nationalism...where many Americans continue to locate a central core of their identity. The meaning of heroism, the relation of the individual to family and community the nature of patriotism, the value of freedom, the challenge of making a home.[32]

All of these are central components to people's lives in Hidalgo County, getting passed along by the people living in the region to those new to the area through social gatherings, work-sharing, or experiences with children, grandchildren, and neighbors. It is a function that Barre Toelken calls the ideational core of the community, interactions that:

> help to reinforce and maintain the central ideas of the group (their value centers), help to induct newcomers (children and greenhorns), into the group, and help to define outsiders and strangers.[33]

Work-sharing, what we know as “being neighborly”, is another important way people's identities are not only strengthened within themselves but tied intimately and become interdependent with others in the community. As one resident explains:

> I help my neighbors and they help me ..... hell, we get along with everybody in the county...we work together all the time. He [neighbor] is gonna help me tomorrow and I’m gonna help him Saturday.

The difference between rural and urban values is a major concern as urban influx and encroachment into rural areas continues to increase in the Southwest. Much of the problem, as I've already said, is simply a matter of coping with differing values: values that are so deeply embedded, virtually inseparable from the person, that they demand the recognition of almost separate realities. The majority of urban people are likely to see a vastly different horizon when they look upon the spaces of the Southwest and Hidalgo County than the one seen by rural residents. A difference which prompts J. Kennedy to explain, rural people tend:

> to have different interactions with rangelands than urban societies, often resulting in different perceptions, values and uses. Many modern conflicts over rangeland or wildlife issues are conflicts of agricultural

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[32] William Cronon, Under an Open Sky, 24 (see note 2).

[33] Taken from Barre Toelken, The Dynamics of Folklore (Boston: Houghton Mifflin, 1979). 106

(utilitarian) and urban (biocentric) values about human relationships with and the use of nature.[34]

The different views over rural landscapes results in a somewhat diabolical tendency in politics and academics to label rural people as “traditional” and urban people as “modern" -- giving rise to the misconception that rural people are less informed and less willing to change in the face of newly “emerging world” (read urban) views. It is a tendency that makes a lot of people in Hidalgo uneasy, even angry in some, like the resident who told me:

> I hate this traditional/modern dichotomy: these people are traditional and these people are modern. In order to understand intellectually the differences, they use this traditional/modern dichotomy: these people are traditional and these people are modern. What bothers me, is that they were talking about traditional people in the 20th century, assuming that these people stayed in the stone-age. They look at us as being clannish, and backward, which for them [urbanites] is being apolitical.

This dichotomy is a problem recognized well beyond the hills of Hidalgo as social scientists from a wide range of fields and interests begin to uncover some of what lies in the shadows of this division. Stuart Hall is among the foremost of these, and writes:

> the changing balance and relations of social forces throughout ... history reveal themselves, time and again, in struggles over the forms of the culture, traditions and ways of life of the popular classes... that is why popular culture is linked, for so long to questions of tradition, of traditional forms of life -- and why its ‘traditionalism' has been so often misinterpreted as a product of a merely conservative impulse, backward looking and anachronistic. Struggle and resistance -- but also, of course, appropriation and ex-propriation. Time and again, what we are really looking at is the active destruction of particular ways of life, and their transportation into something new. “Cultural change" is a polite euphemisin for the process by which some cultural forms and practices are driven out of the centre of popular life, actively marginalised. Rather than simply “falling into disuse” through the Long March to modernization, things are actively pushed aside, so that something else can take their place.[35]

In other words, being traditional is not a way of hiding from change, but questioning the change that occurs and making the conscious choice whether to abandon the old to embrace the new. For the people of Hidalgo, their lifeways are centered around family and place, “traditional" things that mean more to them than entering the tourist consumptive market that much of the Southwest has declined toward.

People throughout Hidalgo County expressed a relationship of trust in their neighbors, a willingness to pass along the values of their community to others, and a general friendliness and satisfaction with the region they inhabit. Most of the people have a definite sense of who they are through their interactions with the communities and the majority of the people I spoke with, young and old, told me this was their home and where they wanted to stay.

Ranching:

> Man is part of nature, and yet he is not: and in that tension he finds his existence.[36]

Throughout my research in Hidalgo County I was struck by the commitment to place that I saw and heard in the

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[34] J.J. Kennedy, “Changing Social Values and Images of Public Rangeland Management” in Rangelands (17(4), August 1995.

[35] Stuart Hall. “Notes on Deconstructing The Popular” in People’s History and Socialist Theory, Ed. By Raphael Samuel (London: Routledge & Kegan Panl, 1981). 227-8.

[36] Thomas Sieger Derr, Ecology and Human Need (Philadelphia: Westminster Press, 1975). 19.

residents of the small towns there. Yet this love of place is expressed nowhere as poignantly or powerfully as by those people whose love for land, home, and community is unparalleled and yet who face the highest risk of losing it all in the turmoil of the changing terrain of national values and political economics: the ranchers. Women and men who have lived their lives in the homes their forefathers built, who have crossed distance and duress that few would endure all for the sake of a lifeway that, for them, holds the essence of the values America was founded upon. For them, place runs deep -- it is attached to every moment of their lives and is as important to their identity as their own flesh and blood. For the rancher, place signifies the sacred, the
resting ground of those who embodied the ideal of the American frontier: women and men who ventured into a "wilderness"[37] to secure a home, to create a lifeway around values they were willing to defend with their lives, and to build a place for those who came after they had gone. For these people, ranching becomes a religion and their birthright is to live and die in the same space as mother and father, or in the same place they will pass to their children and grandchildren. For these people the ranch is not only identity, it is destiny. For them, there is no other place, there is only where they are. It is best expressed by a woman who has spent her seventy years on the ranch her mother and father built and when I asked her why she stays, she told me in tears:

> This is my home. This is my life. My way of life. And my children ask me, "Well where do you want to live, mom, when you can't live there [the ranch]? And I tell them, "I don't want to be here, if I can't live here."

For many of the people who live in Hidalgo County, it isn't a question of choice, of picking the place they want to live. For them, there is no life outside of home. As it is so emotionally and eloquently stated above, there is no second option when it comes to place for these people. That is why the demand upon politicians and policy makers is so high here -- the stakes are high-peoples lives are in the balance. If decisions are made which force some of these people to move from their lands, then it will not only be, as many people in Hidalgo see it, as a violation of human rights, it will be, in many cases, a violation against life itself. Another resident strove to make her point as adamantly as she could when she told me:

> You can't take these people and move them. They think it is paradise here, and everyone here will tell you that. These people just cannot move. They cannot move. They're not mobile people. They're not city people, you can't just tell them, "I have a nice beautiful apartment for you." They don't care about a beautiful apartment. You should see some of my neighbors and the kinds of dwellings they live in. They don't care about these things. They don't live in fancy houses, but they think theirs is the prettiest place in the whole world.

The people who live in Hidalgo are not only engaged in a way of life they find attractive -- ranching and ruralness is their culture, it is every fiber of who they are, how they journey through their lives, and how they expect to die. And while voices will be raised for the economic "realities," there are other, far more humanistic realities as well. Even though it:

> is possible to buy the land from some of these people with money, because times are really tough right now,

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[37]The word ***wilderness*** is always at best a problematic one. As the descendants of European conquers swiftly became colonists they moved into a region already occupied by the first peoples to explore, conquer, and colonize the continent. William Cronon explains that "settlement" really meant "land taking, and land taking meant violence. Violence was central to the frontier experience ... Always it drew dark lines on a landscape whose newly created borders were defended with bullets, blades, and blood ... The more settlers invested their labor and their dreams in the land, the more they belonged to the land and the more the land belonged to them. Indeed, the longer they (and their children and their grandchildren) perceived themselves in such terms, the less one could call them invaders. Before very many years had passed, they too were defending the homes of their ancestors (Under and open sky), 15." I'm saying all this from the perspective of the people here in Hidalgo County, for them it is the home of their ancestors and no one else's.

> these people will break emotional if you do. Their ain't no willing sellers up here. But what is a willing seller? Nobody thought to ask where did it leave them and where did they go after that.

Indeed, ranchers in this part of the West who have, for years now, felt threatened by the implementation of "land reform" and otherwise feel the effects of a changing economy and, for them an often alien and uncertain set of values being brought from primarily urban areas, are moving ahead with very visible forms of resistance and change. It is in these forms of resistance and central to the impetus for the change that one recognizes "how important cleavages and opposition can be in sustaining a regional identity."[38] What ranchers are resisting and the sacrifices ranchers are willing to make to ensure the continuation of this resistance, underscores the deep fracture at a fundamental level ranchers now feel between themselves and organizations whose ideologies are being brought into this part of the Southwest. Ideologies which arise most often from urban mindsets and have been forced upon rural people, ranchers especially, by politicians anxious to garner the massive numbers of voles and dollars in those urban regions. Ranchers encounter threats to their culture and this, in turn, deepens the fractures within their way of identifying with themselves as Americans but also as keepers of something sacred; holders of the great American myth of the cowboy and what that myth represents to our nation. For ranchers in Hidalgo ideology is a lot less ideal than many of us recognize it to be. As a resident said, "I understand that:

> ideology motivates people. But in the rural area, when these people are talking about America, about their constitution and how much they love the United States, they're really talking about their ranch...it's physical for them, it's not completely ideology in the way I understand it to be. It's like, America is my ranch." And they'll say it's violating their American Dream, but I think it really ties so strongly with their connection to where they live.

In other words, the American Dream is not a dream at all among ranchers and residents of Hidalgo -- it is embodied in the place they have made for themselves, as much a part of the landscape as their own flesh and blood. This is why the land upon which the residents lives and lifeway depends is so utterly important to them, and why they care for it as deeply as anyone possibly can. Heather Thomas, in her research on range management, concludes that management of rangelands:

> has been a mix of science, tradition and politics, with the rancher caught in the middle trying to grow livestock and grass. The rancher is the only true range manager, for he is the only one actually on the land. The health and future of the land affect his own future. But the government agencies and pseudo-environmentalists haven't understood this very basic fact, and have often stood in the way of good management, rather than trying to work with the ranchers.[39]

Ranchers in Hidalgo are intimately and inextricably connected to their lands, where their work life, and living come together. For them, I was told:

> the land is important to us - the land is damn important, because we know we cannot make it without the land. If you want it put into Marxist terminology, that's my means of production. I cannot destroy it, I need it. But by the same token it is not a hammer, it's something you learn to love, too.

The feelings here run deep when it comes to the land, where the land is cared for by people who were not trained in management from books, but from sweat and blood and a love almost ineffable, more like what one resident called:

> an instinct; they grew up with it -- sometimes they cannot even explain why they do things, or why they do it

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[38] For more detailed thoughts see Clyde Milner II "The View from Wisdom" in William Cronon's Under an Open Sky: Rethinking America's Western Past (New York: W.W. Norton & Co. 1992), 220.

[39] Heather Smith Thomas, "History of Public Lands Grazing" in Rangelands (16(6), December 1994)

> this way. You cannot ask a straight question sometimes, and get a straight answer. Not because their stupid -- I came to find out that their smarter than me -- it's because they've never had to put it into words that will make sense to a person like me. They talk in very short sentences and the images are very, very visual. They don't know it, they just do it -- and they do a hell of a job.

A job that often times is unappreciated by others visiting Hidalgo -- pointing to the future dangers for the residents and ranchers or this county -- who enjoy seeing:

> the differences. And I can see it day in and day out. I have all intimate feeling with the land and I don't like somebody telling me that I don't have the right to be there because I'm destroying his wilderness. Now I'm getting real emotional, but, damn it, it hurts. You're here trying to do your best with the place you love, the place you've given your whole life to caring for and somebody else comes and tells you your just an intruder. On his place!

New Mexico is a land of space; of landscapes often appearing more art than the art representing them. And like the rest of New Mexico, Hidalgo County rolls out the distant mountains like a vision on canvas. It gives one the feeling that it is a place more land than people. It is a feeling that most people have when coming into the Southwest. But it is a perception possible only when you're passing through - for the people who live in Hidalgo County it is the presence of people and the communities they live in that defines their identities in the midst of the space. This is important and often overlooked because for most people, especially those who live in urban areas and yet make the decisions that affect the lives of rural people, space "does something to the vision. It makes the country itself... into something formidable, alluring, and threatening... [40]" and it has made Hidalgo County, and no where else in the world, home for the people living here.

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[40] Stegner, Wallace, Where the Bluebird Sings to the Lemonade Spring, (New York: Random House, 1992).

STATEMENT OF CUSTOM AND CULTURE -- LEA COUNTY, NEW MEXICO

The lure of open land led to the settlement of Lea County early in the 20th century.

That same openness: unfettered rangeland under limitless sky, still defines Lea County and its people today.

The county's 2.8 million acres anchor the southeastern corner of New Mexico. They are largely flat, semi-arid, and without significant timber or above-ground flowing water. Their wealth lies in the grass and cultivated crops on their surface and the vast reservoirs of minerals beneath.

As a political entity, Lea County was established in 1917 from the eastern parts of Chaves and Eddy counties. But its principal communities were founded some ten years earlier by settlers who had ventured onto the dry Llano Estacado when arable land to the north and east was pretty well exhausted.

Lovington, the county seat, was incorporated in 1908. The other four incorporated municipalities -- Hobbs, Eunice, Jal and Tatum -- were formally established much later, although they had their beginnings as farming and ranching communities at about the name time as Lovington.

Dry land farming and ranching were the means of subsistence in the area until irrigated agriculture was introduced in the 1930s. The number of irrigated acres, however, was still just 3,200 in 1940. The impetus to real development came with World War II, when an influx of population to the Hobbs Army Air Corps base and its suppliers increased demand, and as war-time technology made it easier to pump and distribute water.

Raising and breeding livestock has been as much a part of the county's history and economy as farming. If dry-land farming was a challenge, so was dry-land ranching.

As in much of New Mexico, livestock grazing in early Lea days required more acreage than most settlers could acquire by homesteading. It takes a lot of the kind of surface growth indigenous to the Llano Estacado to raise livestock without supplemental feeding. So, the practice of grazing livestock on the unclaimed public domain became as commonplace in Lea County as it was throughout the former Spanish and Mexican land grant areas of the Southwest.

The petroleum industry changed the face of the county in the late 1920s, beginning with the first discovery of oil near Hobbs in 1928s.

For at least the last 70 years, then, land use in Lea County has centered around agriculture, the range livestock industry, and petroleum exploration and production. The lifestyle and value systems of Lea County communities reflect the importance of these industries.

The challenge of conducting agribusiness in a semi-arid environment, and of extracting oil and gas from isolated, deep fields has bred into Lea Countians for several generations a strong belief in the right of self- determination, the sanctity of private property rights, and the value of open market competition.

Those principles have guided not only business practices but also government operations and accountability in Lea County throughout its existence.

Demographic data supplied by the Economic Development Corporation of Lea County indicates that only about three

percent of the county's workforce of 21,346 people is employed directly in agriculture. However, the influence of agricultural, ranching and open land traditions is much more pervasive.

In the mid-1990s, the county's human population has grown to about 57,000 individuals. Its livestock population, on the other hand, includes approximately 74,000 cattle, dairy cows, sheep and lambs. Some 39,350 acres of land are dedicated to crop production, with annual harvests of cotton, grain sorghum, grain wheat, alfalfa and other hay, peanuts and chili. Race horses are bred and raised in the county, as are ostriches and emus.

Virtually every community in Lea County -- incorporated or not -- has its own roping arena. The Lea County Fair and Rodeo is second only to the New Mexico State Fair in attendance and participation by exhibitors and contestants.

Bird, small game, antelope and deer hunting are extremely popular recreational pursuits. Sand dunes dotting the southern half of the county are frequented by dirt bikes and all-terrain vehicles, as well as by hikers and target shooters. And it's not unusual to see, from any road or by-way in the county, a lone horseman silhouetted against the sky.

In short, Lea Countians are closely tied to the land by their occupational and recreational pursuits, and by their staunch belief in free enterprise and the equitable use of federal lands for the good of the many. They are fiercely protective of their individual and their private property rights. They pride themselves in self-suffiency, dedication to family and hard work.

To erode these values and customary pursuits -- as well as the character-building influence they exert -- by further restricting or unnecessarily regulating the use of public and private land would cut way at the very fabric of the county.

LINCOLN COUNTY - CUSTOM AND CULTURE
as influenced by Livestock Grazing on Public Lands.

I. Past Use

La Placita (Lincoln) was first settled in 1849 along the Bonito River. Small farms were established and a trading center developed. The establishment of Fort Stanton in the 1850's provided protection from the Indians and a market for goods produced on the small farms. Other settlements and farms were established along the Rio Ruidoso, Rio Rondo, and smaller creeks. In the 1870's, gold discovery led to settlements such as white Oaks, Nogal, Bonito City, and Jicarilla being established.

The development of the farms and gold field required the use of water and the doctrine of "first in time; first in right" developed. Water rights were established and the right to use the land was tied to the use of water. These rights were bought and sold as chattel. "Squatters" and "jumpers" (those who used the land without having a secure water right) were common and often dealt with in a violent fashion.

In the late 1870's and 1880's, the large corporate cattle ranches along the Pecos River began looking for additional grass. They began securing water rights along the Rio Rondo and other creeks and allowing their cattle to graze the public domain for as far as they could graze away from water. Large ranches were also developed in other parts of the county by subsidiaries of English companies.

In the 1880's and 1890's, homesteaders began filing on 160 acre tracts of land. The first areas homesteaded generally had a natural source of water located on them. Other homesteads that did not have a natural spring or lakebed were somewhat arable, and summer runoff was diverted into dirt tanks and further ditched to the fields. These tracts of land went from public domain to private ownership and the use of the land was tied to a natural source of water on the land or dependent upon the rainfall. Crops such as corn, milo, and oats were grown for the settlers own use as well as sold or bartered to local merchants. They also raised livestock and these often grazed on public lands. Some of these early settlers brought in additional income by trapping and hunting as well as cutting firewood and posts on the public domain. Small communities were built and many one roomed schools established. In this time period, some of the large ranches would also have their cowboys file on a tract of land under the various Homestead Acts, then buy the land from the cowboy thereby transferring more land into private ownership.

With the development of water well drilling and windmill technology, smaller family-owned ranches were also established. They acquired land from homesteaders who either went broke or sold out to move to greener pastures. Livestock ranches were also formed when the large corporate ranches sold out to partners or drought and economic panic and depressions caused them to sell.

Livestock grazing on the public domain continued to occur by everyone, and there was no chance for any of the ranchers to conserve or manage the grass because "if you didn't use it, somebody else would". Some of the ranchers began fencing their deeded land and as much public domain as their cattle could graze from water.

When the Taylor Grazing Act was passed by Congress in 1934, the indiscriminate grazing use of the public land was halted. The public land with a three or four mile service area of "base water" was allotted to the ranchers and the land fenced accordingly into units. Some of these ranching units have remained in the same family ownership; some have been broken into smaller units through inheritance or an economic need to sell off a portion of the ranch; while other ranches have grown larger by acquisition of small ranches or homesteads.

II. Present Use

The use of Public land for grazing of livestock is very important to the welfare of the citizens of Lincoln County and also to the health of the range itself. Lincoln County has a total land surface of 3,109,760 acres of which 1,704,937 acres are deeded land, 301,481 are state trust lands, 524,717 acres are managed by the Bureau of Land Management and 398,743 acres are managed by the Forest Service. With 31% of the land in Lincoln County managed by the Federal government and 18% of that total managed by the BLM, one can see what a significant role these lands play in the make-up of Lincoln County. The BLM has 120,184 AUM's in Lincoln County or 21% of total grazing. This area supports $6.8 million in output, $1.7 million in income and 63 jobs annually. The State land and private land supports 24.3 million output, 6.2 million in income and 222 jobs per year. Since the public lands effects are assumed to be proportioned to the public forage, these effects are likely to be conservative estimates. There are approximately 124 commercial ranches in Lincoln County, of which approximately 69 (or 55 percent) depend on federal grazing leases (BLM and USFS) for at least one quarter of their vegetation requirements. Most of the other ranches have at least some small parcels of BLM land on their ranch. Many of these parcels of land are small or scattered throughout the main ranch.

With the elimination of livestock grazing on public lands, the operators would be forced to liquidate and disperse their livestock, or obtain other lands for grazing to remain in business.

Besides the obvious economic impacts, environmental considerations are worth mentioning. The technological advances and innovations available to modem ranchers and government agencies enables them to improve natural resources with proper management. Some of the effects of managed livestock grazing are loosening of the soil surface during dry periods; incorporation of mulch into the soil profile to speed humus development, nutrient recycling and increased availability in the ecosystem, tramping of seeds into the soil, reduction of excess accumulation of standing, dead vegetation material which chemically and physically inhibits new growth; and reduction of fire, insect, and rodent problems association with vegetation accumulation (Holochek, 1981). Proper grazing stimulates plant grown in many cases (Stoddart, et al.,1975).

Many of the rural communities in Lincoln County depend on agriculture as the primary source of income and jobs for their residents. The survival of most of our rural communities and the institutions which make up those communities, such as churches, schools, fire departments, community centers and business, would be seriously jeopardized by the reduction or elimination of grazing on BLM lands.

The use of the BLM lands to graze part of the 34,000 cattle and the 53,000 sheep is very important to both the rancher and the citizens of Lincoln County not only for the revenue brought in but also keeps the rural aesthetics of Lincoln County alive and well.

III. Future Use-BLM Standards & Guidelines EIS - Statement of Custom & Culture of Lincoln County.

Lincoln County's population growth and the world's population growth will put more demands upon the BLM administered lands within Lincoln County. These demands include increased recreation use, increase in oil and gas production, increased demand for agricultural products and an increase in demand for water. This population growth in Lincoln County will also place a larger burden upon the County's government for services.

The uses of the BLM administered lands must be maintained at or above the current levels to protect Lincoln County's economic base. Policies must be put in place to protect the local people's independence, political integrity, economic discretion and responsiveness to retain a way of life commensurate with local custom and culture. Increased restrictions and encumbrances upon current uses of the lands and property rights will hurt the economic base resulting in loss of community stability and slow or no economic growth.

Community stability and a growing economy will let the future generations of Lincoln County citizens inherit and continue the custom and culture that Lincoln County citizens currently enjoy. The custom and culture of ranching will pass along many of the beliefs and values that are cherished by our rural society including but not limited to:

satisfaction of producing food and fiber to meet the world's needs - admiration, appreciation and respect for nature - good work ethics - leadership abilities - self-reliance and independence - appreciation, trust and fellowship between neighbors - conservation of natural resources - responsibility and reliability - patience and tolerance - respect, honor and duty - compassion toward all animals - accountability for one's own actions - the desire to learn - and the ability to practice successful resource stewardship. By protecting the custom and culture of ranching in Lincoln County, the small family owned ranches will be able to continue a way of life that is highly rewarding in the quality of life and the dignity that go along with a job well done.

IV. TRENDS

Since the 1970's a number of smaller ranches around Capitan, Carrizozo and Ruidoso have sold primarily for subdivision purposes. Some USFS allotments around Ruidoso are unalloted because the commensurate property was sold for development.

The trend in the county is for parcels of private land around the urban centers to be sold for housing purposes.

Some of the smaller ranches are being bought by more financially secure ranchers so as to maintain an economical unit.

Some of the larger ranches are being purchased by people from other states who have substantial outside income. Other ranches, particularly small units, are purchased by people who are retired or have off ranch income and can subsidize the ranch operation. In general, the trend is that livestock ranches are being bought by people with outside income, who are not relying on the ranch income to make a living for them, yet are attracted to ranching because of the myth and custom/culture attached to livestock ranching.

LUNA COUNTY
CUSTOM AND CULTURE

LUNA COUNTY

Luna County, with an area of 2,957 square miles, is located in the Southwest part of the State of New Mexico. With Mexico along its southern border, it is bounded by Dona Ana County on the east, Sierra and Grant Counties on the north and Grant and Hidalgo Counties on the west.

Deming, the County seat, is located approximately mid-way across the county east-west axis and alongside Interstate 10. Deming is approximately 100 miles north-west of El Paso, Texas and 80 miles east of the Arizona State Line.

Columbus, the only other incorporated municipality in the county, lies three miles north of Palomas, Mexico and about 30 miles south of Deming on State Highway 11.

Luna County was created in 1901, having been carved out of eastern Grant County and western Dona Ana; it was named for Solomon Luna, a prominent area sheep rancher and politician. The formation of the new county was the result of a long standing rivalry between Deming and Silver City; a situation that began in the 1880's with Deming residents demanding a county of their own. A series of bills were introduced in the state legislature between 1888 and 1901 requesting the establishment of a new county. The effort succeeded in 1901.

The earliest traceable inhabitants, the Mimbres Indians, established themselves in the area around 950-1000 A.D. Irrigation agriculture was probably employed. Their culture continued to develop until the drought period of the 1300s. Their settlements in the area were abandoned by the end of the extended drought. Today these early inhabitants are best known for their distinctive pottery with its characteristic designs of black and white.

Spanish exploration of the area probably started about 1780 when Governor de Anza led an expedition south from Santa Fe to explore for possible new trade routes to the settlements in Sonora. Two other groups left Mexico about the same time, hoping to meet de Anza's men in the Mimbres Mountain region, (about 40 miles north of Deming's present site). The three groups explored the area, including the Mimbres river and Cooke's Peak. The hope for meeting never occurred and a direct trade route remained undiscovered.

The second contact with the Spanish came in the year 1785 with another expedition into the area. The purpose of this expedition was not to explore, but to hunt Apaches who had become active in the region by that time. The venture was unsuccessful and the Apaches remained in the area, harassing the Spanish interlopers and their Anglo successors until the end of the nineteenth century.

The greatest hindrance to the early growth and development of the region, next to the Apaches, was the lack of water. Early water laws developed through custom into what became known as the Prior Appropriation Doctrine. This doctrine meant that the first person to use the water for beneficial use created a property right to the water. Mining and livestock grazing were the primary "beneficial use" applications within what was to become Luna County.

This doctrine existed in Mexico prior to U.S. acquisition of New Mexico; it was continued by New Mexico territorial and state governments and was culminated by Congressional passage of the Act of July 26, 1866, which stated in part: "That whenever, by priority of possession, rights to the use of water for mining, agricultural...purposes, have vested and accrued, and the same are recognized and acknowledged by the local customs, laws and the decisions of the courts, the possessors and owners of such vested rights shall be maintained and protected in the same". Water rights have long been a property right in Luna County.

Early settlers in the region quickly laid claim to the seeps, springs and wells under the prior appropriation doctrine.

Those who owned the water sources often controlled large areas of grazing land. It was an accepted fact within the West, that “He who owned the water, owned the land."

Following the Mexican War, the boundary between the United States and Mexico was established thus leaving the area containing Luna County on the American side. Much of the land in the county was obtained through the Gadsen Purchase, with the U.S. seeking the land for a southern route for a transcontinental railroad.

A southern land route was in great demand following the gold rush boom in California and a new trail was developed by the Butterfield Overland Mail Company. The company was in operation until the new Southern Pacific Railroad lines forced it to close its doors.

Fort Cummings, in 1863, was established in the county to contain the Apaches - who posed an ever increasing threat to the settlers. The fort, manned by Black troops, was built with twelve foot thick walls which protected the garrison containing barracks, hospital, offices, commissary and quartermaster departments. The fort was of considerable importance as it guarded the southernmost portion of the Butterfield Trail, which was considered one of the most dangerous stretches of the southern route. The fort was abandoned in 1886, after years of unsuccessful attempts to contain the Apaches.

A number of small settlements were established, in site of the Apache threat to the settlers, after promising mining finds were made. These towns, Gage, Hermanas, Victorio and others, still persist on some maps today, but little sign of their existence remains. Other towns, Vencill, Wemple, Mongola, Marios, Luxor, and Ocho grew-up at road and rail interchanges but never seemed to develop.

Only two of the settlements, Deming and Columbus, took hold and grew. Columbus, a small border town, was largely burned in 1916 by followers of Pancho Villa. The town declined in population following the raid as frightened villagers moved elsewhere.

Deming became the county's population center following its inception in 1881. The town was named for the wife of one of the owners of the two railroads which met at the Deming terminal. Known as the “City of the Windmills” because of the windmill beside every house, Deming grew in importance. It became a central shipping point for minerals and livestock and a stopping point for travelers on the railroad.

Deming attracted many rough men of the West because of its importance. It is said that General Crook rounded up outlaws in Arizona and gave them one-way tickets to Deming. Social life in Deming was giddy, with numerous bars and saloons, and the Harvey House as its center. "The Bucket of Blood", “The Aquarium”, and "Climax" saloons were as colorful and exciting as their names. Finally, the citizens of the town formed their own Militia and held drills in the streets. This, combined with the final capture of the Apaches, made life in Deming more secure and orderly for its inhabitants. Social graces flourished with the Deming Opera House reputed to be the finest between Kansas City and Los Angeles. Luna County and its inhabitants, in 1901, had finally arrived.

Mining has played an important role in the culture and custom of the county. There has been rather extensive mining activity in the Florida Mountains and Cooke's Peak, with the most active period from 1880 to 1920. Metals mined in the area include lead, zinc, copper, silver, gold and manganese. A mill for processing ore was built in 1921, but did not prove profitable and was discontinued in 1931. Manganese deposits were worked during World War II and in the 1950's but these too played-out and have been discontinued.

The area of present Luna County has been principally cattle country since the early 1860's. Mining; the Butterfield stage route; the soldiers stationed at Fort Cummings; the approaching railroads, with their trackside towns, caused the early settlers to realize the profit of the surrounding land lay in the grazing of livestock. Even before the county was formed in 1901, Deming and Columbus were the chief cattle shipping points in Southern New Mexico. The rancher who owned the water controlled vast areas of the land in this arid region of unassigned lands on the public domain.

The Taylor Grazing Act was passed in 1934, recognizing and protecting the rights of the county's stockmen to continued use of federal lands. The law created grazing districts and recognized the grazing preference rights of ranchers whose livestock were grazing the public domain, and who possessed water rights and deeded property contiguous to the public land they were using. The rights were acknowledged, on allotments of public land, by permits designating the number of animal units allowed (or permitted) by the Bureau of Land Management (BLM). Preference rights could be bought, sold or transferred by the ranch owner alone. The law provided that preference rights could only be obtained from a willing seller. Once the transaction was completed the new owner could apply for and obtain a permit from the (BLM). Thus today, federal lands in Luna County contain property rights which are owned by ranchers and other property rights owned by the public. This situation has been and continues to be a source of confusion and animosity.

Despite the confusion over property rights on the federal land, cattle have played a major economic role in the county over the years. The total number of cattle in the area in 1910 was about 31,000 and today the county boasts more than 40,000 notwithstanding recent droughts and poor market conditions. The cattle industry, along with other sectors of agriculture, continues as the economic bedrock of the county.

In 1909, irrigated farming came to the county, and the agricultural economy was firmly established. The soil and water combined to provide an excellent variety of crops; chief of which today are chile, cotton, hay, wheat and onions.

Today Luna County is in the midst of a period of transition; holding to the traditions and customs of the past, while positioning for the future. Agribusiness, tourism, and trade with Mexico are vital to our future growth, but our strength remains in crop production and the livestock industry. The citizens of the county realize the hard lessons learned from the past; the future of the county remains with the two elements that have brought us to this point -- our land and our water. We must protect these resources above all others.

CUSTOM AND CULTURE

Luna County inhabitants, through a long history of Indian, Spanish, Mexican and American settlers, have bonded in an appreciation and love of the two elements which have provided for their livelihood over the years. Those two elements are land and water. Those two have become, not just soil and moisture in the traditional sense but, “our” land and water. The area encompassing the land and water is home and in many cases the home of our ancestors. There is a deep sense of belonging associated with that area. Here in this place of earth and rain their “roots" were nurtured and watered. It has not always been that way.

The early Mimbres Indians, who were the first known to irrigate their crops in this region, lost the area as their homeland. The drought came and stayed too long. The people disappeared and with them their custom and culture was lost. Other people soon followed with similar results.

The Spanish explorers rode in to find fortune, established towns and soon left as they came. Mexico replaced Spain in North America, as two cultures blended together and Mexican people moved in and replaced the Spanish. The Mexican settlers further developed existing trade routes, expanded their frontier and pushed north. Like those who preceded them they could not hold these lands either.

Americans, believing their destiny to be manifest, overwhelmed the government of Mexico and through treaty and purchase this area became a part of the territory of New Mexico. The new settlers fought the Apaches to hold this land - their new home. They were a tough and resilient people who came to stay. They conquered the adversity which had made the place so hard to tame. Those early pioneers used the land and the water and they made this place their home.

Those pioneers, before irrigation techniques became sufficiently advanced, capitalized on the natural resource produced by the soil and rain -- the grass; the forage. They became livestock producers. Their beef fed the soldiers who fought the Apache; the men who built the railroads; the miners who extracted the ore; and they shipped their

cattle east to feed an ever increasing market. The soldiers left as the Apache were quieted; the builders moved on as the railroads were finished; miners searched elsewhere as the mineral sources ran out; but the cattlemen stayed and continued to feed the people back east. Ranchers, like the farmers who followed, owed their very existence to the land and water. They remained while the others moved on, and they provided the stability required for a culture to grow and flourish.

Those early settlers' firm tenacity played a major role in the manner in which many of Luna County's present residents react or respond in their behavior patterns. The ranchers whose families came and stayed, now boast of being third and fourth generation stockmen. They have shared In the passing along of values and beliefs which have created a way of life which is unique to this community. The families who passed the same ranch to their sons that grandpa carved out of this arid wilderness, likewise passed along a knowledge and love for the land that can only be obtained from working and living on that land. Not just that land, but their land.

It was their land in the classic John Locke theory which consisted of the idea that property was created by mixing an individual's labor with the state of nature (the unassigned lands of the territory). The water was their's by virtue of the doctrine of prior appropriation, which stated that the first person to use the water and put it to beneficial use, created a property right. The early settlers passed these concepts on to their heirs and the local community. Thus there was a powerful motivation to care for the land and water.

Early pioneers found that grasses must be preserved and conservation was vital if their business was to withstand drought and low market prices. They came to understand they could not abuse land and water resources and continue to have a viable ranch which could be passed to their heirs. This concept became a way of life; a part of the rural culture of Luna County.

This way of life, has spawned a powerful emotion that runs deep in the people who live on the land. They believe that they understand how to care for it better than anyone else. A concept similar to that has captured the urban members of the county as well.

The idea, that local people know what is best for their county, is comparable to the assertions that ranchers know what is best for their land. People in the towns of Deming and Columbus have long concluded that they know how to solve their local problems better than anyone in the governing bodies of Santa Fe or Washington, D.C. They do realize however, there are times when we all need help.

Today, as in times past, when hard times fall on a family it is customary to help them through those times of need. This is what Luna County is all about and the type of thing we desire to protect and continue as our tradition. We believe in helping one another.

Help is necessary when it comes time to work cattle. Moving cattle from pasture to pasture in order to steward the range; branding; yeaning; shipping; and a multitude of other chores is too much for one family to handle at times. That's when neighbors share the job and help each other. Helping one another is a habit we want to preserve.

Even with help from friends, farming and ranching is a difficult way to raise a family. Today's ranch and farm will usually only support one family. Often the principal providers must work a second job as well. Never before has that old saying been more true, that says, "Behind every successful rancher is a wife -- who works in town." Because of the economic difficulty of family agri-businesses, children learn at an early age the meaning of responsibility; the importance of hard work. The result is the development of young people with a sense of self worth that serves them throughout a lifetime. Rural kids grasp the meaning of "family." They always remember it was at home that they learned these important lessons.

Home is the farm or ranch they grew up on. This is the stability in there lives that they can always count on -it's their special place. A place they can return to and find the recuperative power to revitalize that inner being. That is what it means to grow up on a ranch in Luna County. That is what generations of living off the land give to people.

The people who lived on these lands and drank from these waters before more recent times left a wonderful heritage also. Their contributions have left powerful influences on the people of Luna County. The Mimbres Indians handed down an almost reverent respect for beauty. Today we admire the exquisite art work of their pottery and we study their culture. We recognize a spirit of adventure which has been passed down from the early conquistadors who searched for their fortune in gold in this land. We greatly admire the humble religious faith and powerful family ties inherited from Mexico. We honor the proud Apache people, with their fierce desire for freedom; their invincible ability to withstand the cruel elements of the environment in which they lived. These are all a part of the mosaic that has been woven together to form the structure that supports the way of life residents of Luna County wish to maintain and strengthen. The past has forged us and made us the people we are today. We have been blessed by the blending of many peoples, mores and traditions, but beneath it all is the land and the water. The love for this land defines us best as who we are.

OTERO COUNTY
CUSTOM AND CULTURE

THE CUSTOM AND CULTURES OF THE PEOPLE OF OTERO COUNTY

The very first people to inhabit our county were transient. They came down from the north, in the winter they hunted game in the desert and migrated to the cool Sacramento Mountains in the summer. We find artifacts they left behind in the Fresnal Shelter, under the Otero Mesa Rim and their petroglyphs at Three Rivers and on the Cornudas Mountains in Souther Otero County.

Probably the proudest people ever to rule this part of the world were the Apaches. Their territory included west Texas, New Mexico, Southern Colorado, Arizona, Sonora and Chihuahua.

Our local tribe was the Mescalero Apaches. One of their staple foods was the mescal cactus, so they were called "mescal eaters" or Mescaleros. The mescal plant grows in the desert mountains of southern New Mexico. It is about two feet tall. The Mescaleros would cut off the spiny leaves to reveal the heart of the plant which is about half the size and shape of a basketball. They were baked with wood fires and stones for several days before eating and the leaves were used for fiber.

The early day Mescaleros never practiced agriculture but were very nomadic. The traveled down to the Texas plains, through western New Mexico and Arizona, down south into the Sierra Madre, and continued south and west into the tropics--hunting and gathering as they went. Then they would return to their homeland up through Chihuahua and cross the Rio Grande coming back north to the Tularosa Basin and Sacramento Mountains. Resisting first the Spanish and later the Anglos, they put up a gallant fight to save their land, but the end came when Geronimo surrendered in Skeleton Canyon. They were made prisoners of war and incarcerated in Florida. They were later sent to Fort Sill, Oklahoma. After Geronimo died in 1909, the Apaches were released and many of them came back to Mescalero. Today, we have a mixture of many Apache Tribes living here. We still hear many of the royalty ancestral names, such as Cochise, Shanta Daklugie, Geronimo and Chino. Today many of the Apaches are farmers, ranchers and foresters. They also manage a thriving timber and tourist industry.

1800's

The next people to come to our area were the farmers, ranchers and miners. Most of these people came from Texas soon after the military came to protect the settlers. Forts were built all over the west, and our closest military protection came from Fort Bliss, a small fort north of Tularosa, Fort Stanton and the Buffalo Soldier camp near Wind Mountain in the southern part of Otero County. Farming soon failed except where it could be irrigated. In the mid 1930's the last of the dry land farmers gave up. The miners had their hey day in the Jarilla Mountains near Oro Grande and on the west side of the Sacramentos. The Oro Grande area dominated the local mining industry, and the real rush came when 61/2 ounce gold nugget was found in the Little Joe Mine. Three mining camps were built up in the mountains northwest of Oro Grande, -- Brice, Lucky Flat and Ohacey (the only one with a post office). 7 miles of railroad were built up through the mountains and a smelter was built at Oro Grande, which at the time had 3,000 residents. A 53-mile pipeline to bring water from Sacramento River was constructed. This pipeline still furnishes Oro Grande with water. Oro Grande had a newspaper, 9 saloons with brothels and all the gaiety of any other mining boom town and gambling center. Three train loads of Ore came out of the mountains each day for many years. The miners were on the top rung of the social and economic ladder for many years, but as the ore played out the rancher became the dominant leaders. After the Civil War many ranchers moved to our area. They could get free land, free grass and water. Ranching was our number one industry for many years, and is still an important part of our economy. Many small ranchers moved their herds from Texas, early day ranching included cattle, sheep, goats and horses to be sold to the calvary. Several cattlemen built vast empires such as Oliver Lee and Albert Fall each controlling in excess of a million acres. There were also John Good of La Luz and Pat Goglan who was called the King of Tularosa and was a partner of Billy the Kid in a beef contract for Fort Stanton.

The U.S. Forest Service and the Bureau of land Management were given management authority over all federal land and the herds were cut drastically.

1900's

In June 1898 the railroad reached Alamogordo, then on to Cloudcroft, opening up the new industry of lumbering. The stagecoach took passengers from the Cloudcroft depot to Stegman which is now Artesia. The railroad also opened up our county to tourism. Cloudcroft and Alamogordo built some fine hotels and Cloudcroft had Casino-type gambling for many years. Every few miles along the railroad, small towns and villages were present some of them being Valmont, Escondida, Turquoise, Hueco, Newman, Kearney siding and Three Rivers.

In the mid 1940's a paved road was built to Cloudcroft and the railroad was taken out. Lumbering is still an important industry for our county, even though it has slowed down the past few years because of environmental concerns. The community of Mayhill, on the Penasco River, is an irrigated farming and ranching community. Weed is on Agua Chiquita Canyon and is mostly ranching and lumbering. It is a very old settlement. Pinon is a ranch community of sheep, goats, and cattle. The communities of High Rolls and Mountain Part are fruit growers and are becoming a bedroom community for Alamogordo. La Luz is a very old community and has some irrigation. Tularosa was started by families from the Rio Grande in 1865 and is our oldest town. It has irrigation and most of its labor force works for military related industry. They have a rich culture and history. Boles Acres, the Oro Vistas and Dog Canyon settlements all south of Alamogordo, are people who enjoy rural living. They are mostly employed at Holloman.

In 1942 the Alamogordo Army Corps training base was built near Alamogordo. Little did we know how it would change our lives forever. Much of our ranch land was permanently withdrawn for bombing range. At the present time White Sands Range covers 2 million acres and employs 8,160 people. It is the largest overland missile range in the country.

In the mid 50's the ranching industry again was affected when the military purchased several ranches in southern Otero County to create McGregor Range. The purchase included the price for the private land, improvements and the lease hold interest for the grazing lease. Some of the leases were under the jurisdiction of the BLM and some were controlled by the National Forest Service. After the purchases were completed, the ranch houses and outbuildings were taken down. Since that time this area has been used for military target practice, Roving Sands aneuvers and speculative cattle grazing to the highest bidder. Our ranching industry is a small part of our economy at the present time. However, they are a very important part and are a very proud and colorful people.

The county tax records show that we have 19,562 cattle, 964 horses and mules, 9,892 sheep and 837 goats. This is a value of approximately 12 million dollars of earning assets for our county. The latest income figures available for agriculture are from 1994. Fourteen million, nine hundred forty one thousand, 14,941,000, was the figure for all agricultural income for Otero County for that year. We assume the largest portion was ranching, then fruit, nuts and hay, etc.

The National Defense now dominates our county. In 1990 Holloman became the world's only F-117A Stealth Base, the plane that played such a major role in the Persian Gulf War. The F-4E Phantom II, the T38A Talon, the HH-60 Pave Hawk helicopter and the 10 mile long high speed test track are also managed by Holloman. The German Air Force contingent at Holloman consists of 350 military plus their families. By 1999 the Germans hope to have 2,100 people here, with a $21 million payroll and a $100 million military infrastructure budget. Holloman and White Sands have an annual budget of $479 million. Holloman is now in the process of trying to acquire their own bombing range on the north edge of McGregor because White Sands has gotten so busy. This is land already being used by the military. If this happens it will cause more growth for the base and Otero County.

To sum up the customs and cultures report, I would report that probably the only cultures we have lost are dry land farming, mining and the nomadic hunting and gathering. The county culture presently practiced by most people, involves or is directly related to the defense industry. Next in order would probably be entrepreneurial including

tourism, education, ranching, the timber industry, farming and others too numerous to mention. Time constraints prevented us from acquiring dollar amounts for our other cultures.

Clif McDonald
Chairman Customs and Culture Committee
Public Land Use Advisory Council of Otero County

RIO ARRÍBA COUNTY
CUSTOM AND CULTURE

Customs and Traditions of the People of Río Arriba County

Prepared by Estevan Arellano of Oñate Cultural Center Alcalde, New Mexico on February 8, 1997.

INTRODUCTION:

When talking about the American West, all the major institutions that have made the West what it is today were introduced by Spain. Whether it is the large water projects which have brought irrigation to the West, or the livestock industry, Spain's influence is everywhere. And probably there is no better place to see this influence than in Río Arriba County where the first European settlement was established on July 11, 1598. From here the diversity of crops, *acequias*, cattle, sheep, goats, pigs, and the famous Spanish horse, they all spread to the far reaches of the West where they are now perceived to be American institutions, yet their roots are in Río Arriba County and the first Spanish *pobladores*. Based on the research we have done concerning agriculture in the Río Arriba, this area used to produce all types of fruits and vegetables. As early as 1630, Fray Alonso de Benavidez wrote, "*All this land is very fertile, it gives forth with great abundance everything which is sown in it: corn, wheat, beans, lentils, garbanzos, fabas, peas, pumpkins, watermelons, cantaloupes, cucumbers; every kind of vegetable: cabbage, lettuce, carrots, thistles, garlic, onions, cactus fruit, pitahayas, apricots, peaches, nuts, acorns, blackberries and many others...*" What we see today is that the diversity New Mexico used to enjoy is rapidly disappearing, including the grazing of cattle and the famous churro sheep.

Don Pedro Baptista Pino, in his 1810 presentation to the Cortes in Spain, had this to say about diversity, "*In New Mexico all the same crops are harvested that one finds in Spain, and are of much better quality than those grown in the rest of New Spain*." At that time all the lands today held by the Bureau of Land Management and the U.S. Forest service were part of the *dehessas*, or common lands, of the land grants which were used for grazing and for people to exploit the natural resources for materials to build their homes. Today that is no longer true, as more and more restrictions are imposed on a daily basis and locals feel more alienated from their "traditional ancestoral lands," while at the same time outsiders seem to be the only ones privileged to use the commons.

Cultures cannot survive for long without a sustainable agricultural base and sustainable land and water use ethic: care of the earth, care of people, contribution of surplus time, money and energy communally. Old timers call this philosophy.- "*el juicio de la tierra*," the wisdom of the land. In his book, *Plants, Man and Life*, Edgar Anderson describes the garden/orchard plantings grouped around the houses in Central America, much like it used to be in the Río Arriba bioregion of New Mexico.

HISTORICAL PERSPECTIVE:

When we start laying out the ground work for developing an "Environmental History of La Raza," from our perspective, especially as it relates to land and water use in New Mexico, specifically the Río Arriba Bioregion, we have to go back to the writings of the ancient Greeks (*los griegos*), on one hand, the Moors in Al-Andalu and also at what was going on here in 1598.

As *raza* - whether we call ourselves *hispanos, Chicanos. nuevomexicanos, manitos, paisanos*, etc. - there are two very important documents that we have to familiarize ourselves with, one lays the foundation (*Recopilacion de leyes de los reynos de las indias*, published in 1681 in four volumes, divided into nine books, 218 titles and 6,447 laws) and the other (***El tratado de Guadalupe-Hidalgo*** and the subsequent ***Protocol de Queretero***) which guarantees our right to exist as defined by the "Laws of the Indies."

Though the term bioregionalism is a recent term coined by geographers when the *Leyes de las indias* (which have their antecedents in the *Ordenanzas* of King Phillip II of 1573 and the *Siete Partidas* of 1257) were being complied, *nuestros antepasados* in a way were laying the foundation for what today Kirkpatrick Sale, defines as bioregionalism:

"*...the crucial and perhaps only all-encompassing task is to understand place the immediate specific place where we live. The kinds of soils and rocks under our feet: the source of the waters we drink: the meaning of the different kinds of winds; the common insects, birds, mammals, plants and trees: the particular cycles of the seasons: the times*

to plant and harvest and forage - these are the things that are necessary to know..."

Though once we - *la raza còosmica* - might have been an alien presence in this land, because of our Spanish fathers, we have now become as natural a figure in this landscape as the pinon tree because whether we (or the Native Americans) acknowledge it or not, most of us have Native American blood running through our veins. It is that communion with the landscape which ties us to that enduring code of brotherhood, of being *carnales*, just as the poet makes the landscape itself the carrier of memory.

As with so many revolutions, that of Chimayò of 1837 and later the Taos Rebellion of 1847 - with battles in *La Cañada de Santa Cruz, Embudo, Mora and Taos Pueblo* - and today what is happening, it began with memory; today we are on the verge of losing our memory. And if we lose our language, we will lose most of our environmental history and that we cannot afford to lose. Never! For our memory has now assumed the form of the landscape itself. That is the essence of *Querencia*. If we lose one we lose both memory and landscape. "*El que pierde su tierra pierde su memoria*."

Now let's take a look at what I consider three of the most important "laws" in terms of defining bioregionalism, or *Querencia*. Sale reminds us that, "*bioregionalism calls for human society to be more closely related to nature, and to be more conscious of its locale, or region or life-place... It is a proposal to ground human cultures within natural systems, to get to know ones' place intimately in order to fit human communities to the Earth, not distort the Earth to our demands*," which has been the mission of Los Alamos.

Now, let's examine the following in terms of what constitutes our *Querencia* - Río Arriba:

(Book Four, Title Five, First Law: *That the lands and provinces, that have been selected for settlement, have the following wing qualities, it is declared.*

"It is ordered, that having resolved to settle a province, or region which is under our jurisdiction, or later discovered, the settlers be considerate and be advised that the land be healthy, recognizing if men live to an old age, and are of good complexion, disposition and color: if the animals and livestock are healthy, of good size and the fruits and sustenance good and abundant, and the lands good for planting and foraging: if poisonous, and noxious things grew: the sky of good and joyful constellation, clear and benign, the air pure and sweet, without impediments or alterations: the climate without excess heat or cold: (and having to choose between one or another quality, choose the cold) if there is good grazing for livestock: forests and trees for firewood materials for houses and other buildings: a plentiful supply of good waters for drinking and irrigation...")

It appears that Sale was following "las leyes" to arrive at his definition of what is bioregionalism, that for us is *Querencia*.

The same philosophy was expressed by **Marcas Cato** (234 - 149 B.C.), when he advised people in search of a good piece of land, saying that "*It should have a good climate, not subject to storms; the soil should be good, and naturally strong. If possible, it should lie at the foot of the mountain and face south; the situation should be healthful...it should be well watered...*"

Now, let's look further as to how our memory, nuestra querencia, had its foundation layed out.

(Book Four, Title Seven, First Law: *That the new settlements be established with the qualities of this law.*

"*...Try to have water close by, and that it can be conducted to the town and other property, diverting it, if possible, to better utilize it, and the materials necessary for buildings, lands for agriculture and pasture saving on labor and costs that come with long distance. Don't select sites to settle which are very high, due to the winds, and the difficulty of servicing and transportation, or in very low places, since they are prone to illness; settle in mid-elevations, where the north and south winds prevail. And if there are mountains or slopes, that they be facing east or west: and if not possible to avoid high places, settle in areas where there isn't any fog, observing what is best for health and accidents: and if building in the shore of a certain river; and if such is the case, when the sun comes out, it first hits the town, then in the water:*"

Here is where our "*Memory of Landscape*," our *Querencia* - this sense of *place*, this land we call Nuevoméxico begins. Fray Angelico Chávez in his classic book, "*My Penitente Land*," attempts to define this *Querencia* and tie it to the biblical lands or' north Africa, where our ancestors, the Moors, came from.

(Book Four, Title Seven, Law Seven: *That the land and surroundings be abundant and healthy.*

"*It is ordered, that the land and surroundings, which are to be settled, be the most fertile, with abundant, pasture, firewood, lumber; materials, sweet waters, natural people, transportation, ingress and egress, and there be no lake close by, nor marsh lands where venemous animals live, nor there be any corruption of winds, or waters*.")

The three above laws lay the cornerstones, the foundation of what has become our *Querencia*, that which gives us a sense of place, that which anchors us to the land, that which makes us a unique people. "*Before it can ever be a repose for the senses, landscape itself is the work of the mind. It's scenery is built up as much from strata of memory as from layers of rock*," writes historian David Schuma in ***Landscape and Memory.***

Our environmental history is based on a solid foundation, our ancestors were environmentalists - not extremists who understood what was meant both by private property and common lands. Wendell Berry reminds us that, "Historically, the commons belonged to the local community, not to the public." But before we can use the land in common, we need to go back to the past, and mine that "*oro del barrio*," that knowledge which is rapidly disappearing and understand what are our privileges and responsibilities. As nuevomexicanos, today we have had almost nothing to say about our region's character and identity, yet we are the ones who have defined that character and identity.

As Sale writes, in terms of this *Querencia*, or bioregion, we have to know, "*The limits of its resources; the carrying capacity of its lands and waters; the places where it must not be stressed; the places where its bounties can best be developed; the treasures it holds and the treasures it withholds - these are the things that must be understood*." He goes on to say, a bioregion "*is governed by nature, not legislature*, " or by the DOE, or any other governmental entity.

When we talk about the commons, the *dehessas y montes*, we are concerned about lands where we all have a common interest, an interest that precedes our interest in private property or the *suertes*. For we not only share in the common wealth but we also share in the common health, the two, in fact, are inseparable. Berry writes, "*If we have the `right to life, `as we have always supposed, then that right must stand upon the further right to air; water, food, clothing, and shelter*." Exactly what the *Laws of the Indies* defined as the perfect places for the new settlements.

If we want the land to be taken care of properly, duty and sentiment are not enough, we must have people living on and from the land who are able and willing to care for it. We need to implement a different kind of education, a different philosophy and a different economy. Again I must reiterate, we cannot get good care of the land by demanding it from public officials. We have to understand that we cannot save the land and water apart from the people or the people apart from the land and water. To save either, we must save both; and for that we need a strong rural economy. In a way Los Alamos destroyed that rural economy, it destroyed the diversity that existed in northern New Mexico and in its place created an economy based on fantasy. Instead of preserving the possibility of intimacy in the use of the land, as dictated by the *Laws of the Indies*, Los Alamos created a consumptive society interested in sterile or inconsequential intimacy. The intimacy for the land became supplanted with an intimacy for money. Our economic system of *cambalache* was taken over by a money economy and greed.

Laura Jackson, in her paper, "***Agricultural Industrialization and the Loss of Biodiversity***, " warns us that as farming families dwindle, we lose not only essential and perhaps irreplaceable knowledge, but "*When the minds responsible for these farms have left the countryside, replaced by minimum-wage labor in factory-style facilities, so will the potential to conserve and improve the agricultural landscape*." Though Los Alamos pays good wages very few locals can get past a certain wage level. What we have in the Río Arriba Bioregion is a colonial economy and colonial economies place no value on caring for the land, and do not teach, encourage, reward and much less protect it. So now we have environmentalists who have no concept of our history who want to come and teach how to care for the land.

Before when land was banded down from father to son, so was that knowledge of the land, of how to water from the *acequias*. That is not the case today; now the land passes so rapidly from one owner to the other that there is no time to learn how to use it. Everytime a piece of property is put on the market the prices go up and so do the taxes; then the local county commissioners get blamed when it is greed that drives the prices up. In Embudo from 1970 to now the price for land has gone up from $1,000 an acre to upwards of $40,000. As a result it is predictably abused, old cars abandoned in the orchards, mobile homes in arroyos, luxury homes on mountain tops and *cienagas.*

CONCLUSION:

Berry reminds us, that "*if conservationists are serious about conservation, they will have to realize that the best conserver of the land in use will always be the small owner or operator...who knows how to use the land in the best way, and who can afford to do so."*

We have to prevent abuse of the land and water and the best blue-print is to follow the *"Laws of the Indies*," as our forefathers did. We have to preserve what we have, but at the same time, realize an economic benefit that only comes from knowing the land, being intimate with the land. "*We have to move towards vigorous local economies capable of sustaining a stable and capable rural population rewarding them appropriately both for their products and their stewardship*," Berry reminds us.

Sale tells us, "*...that bioregions are not only of different sizes but often can be seen to be like Chinese boxes, one within another, forming a complex arrangement from the largest to the smallest, depending upon which natural characteristics are dominant.*"

It is this intimacy with the land that we must protect, this knowledge that has to be preserved. Some of us have been doing it for a lifetime. In closing I want to remind you:

"**We do not inherit the land from our parents, we have it borrowed from our children**," therefore we have a moral obligation to turn the land over to our children in a better condition than we got it, not worse. As I've pointed out, we have a solid environmental history to backup our philosophy of *Querencia*, or bioregionalism, as the best model for moving forward as we approach the 21st century it is a knowledge that draws a classic Greek agricultural practices, Roman law, Moorish customs, along with the knowledge inherited from the Mayas, Aztecas and Pueblos. Here the knowledge from Africa, Europe and the Americas converged in 1598. We are therefore, *la raza cósmica, la nueva raza*; we are a walking diversity of bloods, cultures and languages, anchored in *nuevomexico, nuestra Querencia*.

SANTA FE COUNTY
CUSTOM AND CULTURE

Santa Fe County

Custom and Culture

"By and large this is the New Mexico associated with the upper Rio Grande Valley and the mountains containing it. It was here that the first colonists settled in the late sixteenth century, and it was here that the province (state) acquired its identity. What attracted settlement was the mild climate, the apparent abundance of water, the fertile soil, and the forests covering the mountains. In many ways the landscape seemed to resemble that of Spain. Almost from the time of the first explorations New Mexico was seen as a kind of promised land: not a paradise of ease and abundance, to be sure, but a land of grass and forest and flowing water where the effort of working men and women would duly rewarded. For it so happens, even today, that no matter whether you come to New Mexico from the immediate east, the High Plains, the arid south, or the canyon landscape in the west, the region always seems, by comparison with the country you have been traveling through, a land flowing with milk and honey. What shatters the illusion is the long dry summer that afflicts the greater part of the state...

Spanish settlement was long confined to the Rio Grande region which to this day remains the heartland of Spanish-American culture. The small lateral valleys of the river, as well as the valley of the river itself provided colonist with an environment suited to their kind of agriculture and their kind of living-in small villages where old-established customs and relationships could be continued. Settlement in colonial New Mexico was in effect a transplantation, a new version of the order that had prevailed in colonial Mexico and Spain. It was not work of footloose individuals in search of adventures or wealth, but of small homogeneous groups of simple people who brought with them their religion, their family ties, their ways of building and working and farming.

Each village devised its own communal irrigation system; and each village created its own miniature landscape of gardens and orchards and fields and pastures, a landscape distinct from the surrounding wilderness.

The history of these villages is largely unrecorded; all we know about then is roughly the decade of their settlement, the date of the first church, and the place of origin of their settlers. One after the other, over the decades, the settlements died, but not without resistance. A flood buried gardens and fields under gravel or sand; a local resource- wood or game or a special crop-lost its market; a railroad ceased operation; the school was closed. Rather than abandon their home the villagers became ranchers and raised cattle or sheep. But in the end it died, and others died; first the remote villages on the margins of the plains, where there were no other jobs, and then the villages where the rangeland had deteriorated and the cedars and junipers were coming back into the abandoned fields. All that is now left of that traditional farming landscape are the villages in the mountain heartland and in the Rio Grande Valley."[41]

Agriculture has shaped both the community and culture of Santa Fe County. Due to its past role, agriculture remains an integral and complex part of Santa Fe County. It is simultaneously an economic development issue, an open space concern, an important water element, and a key ingredient in valuation of rural character and lifestyle consideration throughout the County. In all of these respects, the agrarian history of the County provides the foundation for considering how the important and positive aspects of this rural culture can be extended into the future.

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Today government and service sectors have replaced the agriculture sector. Santa Fe County's major employers include the state of New Mexico with approximately 9,000 employees in Santa Fe County: Santa Fe Public Schools, with 1,650 employees; St. Vincent's Hospital, with a staff of over 1,300; and the City of Santa Fe with 1,000 employees. Over the past 22 years the relative share of total employment for the various sectors has remained stable, except for government and services. The share of government sector jobs has declined from 39 percent of total employment to 22 percent. During the same time, employment in the services sector increased from 22 percent to 34 percent. On average service sector jobs pay below average wages. Santa Fe County has set a policy to diversify its economic base.

Santa Fe County government recognizes that the need of each of its communities may be different. It is important for us to seek economic development which is supportive of these needs, enriches our community life and promotes our values of self-reliance, individualism and entrepreneurship. Santa Fe County seeks economic activity which is environmentally and socially integrated with our way of life.

In December 1995, the University of New Mexico conducted a regional strategic planning process to focus on the ways to offset the impact of downsizing of the Los Alamos National Laboratory on the regional economy. Five industry clusters were identified to target:

Agriculture and the food industry
Furniture making and related home furnishings
Environmental technology
Biomedical industry including alternative healing traditions
Multimedia

All five targeted clusters have been adopted by Santa Fe County as important to diversify our economic base and to build upon our traditions.

The Custom of Livestock Grazing in Sierra County

The Development of Equitable Estates for Grazing on Federal Lands
(Adapted from the Draft Sierra County Comprehensive Land Use and Policy Plan, Part II, Chapter 2, pp. 2-5 to 2.14)

1.0 Scot-Irish, Mexican, & Spanish Influence on Sierra County's Land Use Practices

There is no question that the culture of the Scot-Irish, Mexican and Spanish people living in Sierra County have shaped the land use practices, customs and economy of the area. With regard to livestock grazing, these customs were also influenced by the local environment. As the local residents will attest, the environment in Sierra County for raising livestock is harsh. The weather is hot, the rainfall is sparse and it is difficult to work the soil to grow crops on anything but lands subject to irrigation. Because of these "abnormal conditions" when compared to lands east of the 30th meridian, it takes a great deal of land to sustain even a modest size herd of livestock. These environmental factors shaped the custom of livestock grazing in Sierra County.

As stated above, land acquisition under the governments of Mexico and Spain came from grants by the King of Spain or the Government of Mexico. However, because of environmental factors described above, that grant of land was normally not enough to sustain a herd of livestock. Therefore, in addition to the use of his property, the Spanish or Mexican citizen also used the other unclaimed lands belonging to the government, in connection with his private property, to sustain his herd, his way of life and to perpetuate community stability.

In New Mexico, the development of livestock grazing under the American system paralleled, intertwined and emulated the Spanish and Mexican custom of using the unclaimed public domain. Under the American system, although a settler could make a good living on 160 or 640 acres of homestead lands east of the 30th meridian, the same could not be said in Sierra County. As the Spanish and Mexican citizens had discovered, the environment in New Mexico required more land for grazing than could be granted to the settler. As such, a parallel custom, learned from the Spanish and Mexican settlers, became the American custom. Allowing livestock to graze on the unclaimed public domain became the norm.

2.0 Encouragement of Livestock Grazing to Assist in Populating the West

Not only was the grazing of livestock on the unclaimed federal lands the custom in Sierra County, the practice was encouraged by the United States Presidents and by the Army who wished to quickly settle and occupy these lands for the United States. There were three major reasons that American settlers and pioneers were desperately needed to quickly settle the New Mexico territories:

1. Concern that a foreign power would take control of these lands by occupancy.

2. The problem of securing the land from hostile Indian tribes.

3. The protection of the public traveling across the continent.

2.1 Concern That a Foreign Power Would Take Control of These Lands by Occupancy

Many American Presidents were afraid that, unless the New Mexico territories were populated and settled by citizens loyal to the United States, a foreign power would take control of these lands by occupancy. Even though

the Treaty of Guadalupe Hidalgo had ended the war with Mexico, the American Presidents wanted to be sure that these newly acquired lands would be populated with citizens loyal to the United States. As President Polk explained in 1847:

> Mexico is too feeble a power to govern these Provinces, lying as they do at a distance of more than 1000 miles from her capital, and if attempted to be retained by her they would constitute but for a short time even nominally a part of her dominions...
>
> The sagacity of powerful European nations has long since directed their attention to the commercial importance of that Province, and there can be little doubt that the moment the United States shall relinquish their present occupation of it and their claim to it as indemnity an effort would be made by some foreign power to possess it, either by conquest or purchase. If no foreign government should acquire it in either of these modes, an independent revolutionary government would probably be established by the inhabitants and such foreigners as may remain in or remove to the country as soon as it shall be known that the United States have abandoned it. Such a government would be too feeble long to maintain its separate existence, and would finally became annexed to or be a dependent colony of some more powerful state. No foreign power shall without our consent be permitted to plant or establish any new colony or dominion on any part of the North American continent...
>
> The Provenances of New Mexico and the Californias are contiguous to the territories of the United States, and if brought under the government of our laws their resources-mineral, agricultural, manufacturing, and commercial-would soon be developed.[42]

2.2 Securing the Land From Hostile Indian Tribes

In addition to the concern over the use of foreign powers on American soil, the Congress and the Presidents also faced the problem of securing the land from hostile Indian tribes. When President Zachary Taylor received the helm of the nation, he focused on occupying and controlling the southwest region because of her great agricultural and mineral wealth. However, as he soon discovered, the Southwest was not easily controlled because of its numerous Indian tribes.

President Millard Fillmore also faced problems with the warring Indian tribes in the Southwest. In his third address to the Nation, he stated:

> Every effort should be made to protect our frontier and that of the adjoining Mexican States from the incursions of the Indian tribes. Of about 11.000 men of which the Army is composed, nearly 8,000 are employed in the defense of the newly acquired territory (including Texas) and of the emigrants proceeding thereto. I am gratified to say that these efforts have been usually successful. With the exception of some partial outbreaks in California and Oregon and occasional depredation on a portion of the Rio Grande, owing, it is believed, to the disturbed state of that border region, the inroads of the Indians have been effectually restrained.[43]

Fillmore also continually reminded Congress that the Treaty of Guadalupe Hidalgo also required the United States to protect the Mexican frontier. Although Fillmore was able to convince Congress to appropriate larger regimes of the cavalry to the Southwest, he also recognized that the best protection against hostile Indians was to increase permanent settlements.[44]

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[42]Polk, James K., *IV Messages and Papers of the President*, 1847. New York, 1897, pp 539-540.

[43]Fillmore, Millard, *V Messages and Papers of the Presidents*, 1852. New York, 1879, p. 174.

[44]Fillmore, Millard, *V Messages and Papers of the Presidents*, 1850. New York, 1879, p. 87.

2.3 Protection of the Public Traveling Across the Continent

The government wanted to colonize the West as quickly as possible for the protection of the public traveling across the continent. As stated by President Polk:

> For the protection of emigrants whilst on their way to Oregon against the attacks of the Indian tribes occupying the country through which they pass, I recommend that suitable number of stockades and blockhouse forts be erected along the usual route between our frontier settlements on the Missouri and the Rocky Mountains, and that an adequate force of mounted riflemen be raised to guard and protect them on their journey...[45]

3.0 Protection of the Customs, Cultures & Property Rights of Those Already Living in the New Mexico Territories

After recognizing the difficulties of life in the southwest and the importance of keeping those lands for the United States, Congress and presidents would face the problem of determining (1) how the land would be secured for those already living in the Southwest and (2) how the land would be transferred to those moving to the Southwest. With regard to those already occupying the land, the answer to the question would be contained in "local law" and an international treaty.

As stated above, Kearny's Code and the Treaty of Guadalupe Hidalgo guaranteed the protection of the customs, cultures and property rights of those already living in the New Mexico territories. Because many of these settlers had already acquired property titles and additional property use rights from the Spanish or Mexican governments or by occupancy and the promotion of the public good and the public weal, those rights would be protected and honored by the United States government under the treaty and Kearny's Code. Such protection also extended to those land use rights which were not codified by legal title because of the promise to protect local custom. The Treaty of Guadalupe Hidalgo and Kearny's Code even extended the protection of property and land use rights as those uses passed from buyer to seller and from generation to generation.

With regard to the people who were induced by the American government to go to the Southwest to make their fortune, Congress and the Presidents promised "liberal grants" of the land. As promised by President Polk:

> I recommend that the surveyor-general's offices be authorized to be established in New Mexico and California, and provision made for surveying and bringing the public lands into market at the earliest practicable period. In disposing of these lands, I recommend that the <u>right of preemption</u> be secured and <u>liberal grants</u> be made to the early ernigrants who have settled or may settle upon them. [Emphasis added].[46]

In a separate address, President Polk Stated:

> That it will ultimately be wise and proper to protect and make liberal grants of land to the patriotic pioneers who amidst privations and dangers lead the way through savage tribes inhabiting the vast wilderness intervening between our frontier settlements and Oregon. and who cultivate and are ever ready to defend the soil, I and fully satisfied. To doubt whether they will obtain such grants as soon as the convention between the United States and Great Britain shall have ceased to exist would be to doubt the justice of Congress.[47]

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[45] Polk, 1845, supra, pp. 396-397.

[46] ibid.

[47] ibid

Along that same line, President Zachary Taylor told Congress in 1849:

> [I recommend] [t]hat commissions be organized by Congress to examine and decide upon the validity of the present subsisting land titles in California and New Mexico, and that provision be made for the establishment of offices of surveyor-general in New Mexico, California, and Oregon and for the surveying and bringing into market public lands in those territories. Those lands, remote in position and difficult to access, ought to be disposed of on terms liberal to all but especially to the early immigrants.[48]

President Fillmore also urged that Congress move swiftly to establish a commission to examine the validity of all the lands claims in New Mexico and California, since he viewed the uncertainty of those claims as retarding the settlement of the country. In his annual address in 1851, he again stressed the need to encourage settlement of the Territories:

> The agricultural lands [of the newly acquired Territories] should, however, be surveyed and brought into the market with as little delay as possible, that the titles may become settled and the inhabitants stimulated to make permanent improvements and enter ordinary pursuits of life.[49]

Franklin Pierce followed President Fillmore to the White House. He also believed that agriculture development in the west and southwest was of the utmost importance. He urged that the lands be swiftly and inexpensively sold to those settlers who would develop the lands for agriculture purposes.[50]

President Ulysses Grant continued to encourage the movement west with promises of the acquisition of property:

> The opinion that the public lands should be regarded chiefly as a source of revenue is no longer maintained. The rapid settlement and successful cultivation of them are now justly considered of more importance to our well-being than is the fund which the sale of them would produce. The remarkable growth and prosperity of our new States and Territories attest to the wisdom of the legislation which invites the settler to secure a permanent home on terms within reach of all. The Pioneer who incurs the dangers and privations of a frontier life, and thus aids in laying the foundation of new commonwealths, renders a signal service to his country and is entitled to its special favor and protection. These laws secure that object and largely promote the general welfare. They should therefore be cherished as a permanent feature of our land system.[51]

While honest settlers and pioneers hastened west turning barren wasteland into productive farms and ranches, other not so honest and productive citizens also ventured west to attempt to make a fast fortune. Such stories of the graft and corruption of land speculators who would move into an area to deplete the timber and other resources then move on without purchasing or replenishing the land so that it would be suitable for use by permanent settlers caused Congress, in 1891, to alter it policies in an attempt to ensure that the honest settler would continue to build the American west. First, Congress permanently repealed the preemption acts and second, Congress added an amendment to the appropriations bill allowing the president to set aside “national forest lands" or forest reserves.

4.0 Protection of the Rights of Livestock Operators Using the Forest Reserves

Even after the creation of the forest reserve system, the importance of the use of the unclaimed federal lands

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[48]Taylor, Zachary, *V Messages and Papers of the Presidents*, 1849. New York, 1897, p. 20.

[49]Fillmore, Millard, *VI Messages and Papers of the Presidents*, 1851. New York, 1897, p. 127.

[50]Pierce, Franklin, *VI Messages and papers of the Presidents*, 1853. New York, 1897, p. 2749.

[51]Grant, Ulysses, *IX Messages and papers of the presidents*, 1853. New York, 1897, pp. 110-111.

for livestock grazing was recognized and protected. As stated in the official annual report of the Secretary of the Interior in 1891, "One striking difficulty in establishing the reservations [forest reserves] themselves may be found in the fact that much of that land that should be reserved is as yet unsurveyed; other parts are subject to prior rights, or are expected to be included in railroad grants."[52]

Although the creation of the forest reserves or national forests had a very rocky start, livestock grazing was always part of the use of those lands. In fact, the Department of the Interior immediately began to adopt policies to protect the rights of livestock operators using the forest reserves. Those policies:

1. Encouraged the rancher to develop improvements to enhance the productivity of the forest reserves.

2. Allowed title to remain with the Forest Service so that those lands suitable for private settlement would only be taken if such settlement did not interfere with the livestock owners' grazing rights.

3. Allowed the states to collect taxes from the use of the federal lands to be used for the development of water resources.

4. Encouraged cooperative projects between the Department of the Interior and the individual livestock producer to better the land for livestock grazing.[53]

The Secretary of the Interior also established rules and regulations to implement the will of Congress in creating the forest reserves and to protect the prior rights of those within the borders of the reserves. *The first regulations allowing the continued use of the forest reserves acknowledged the Spanish custom of allowing local ranchers to have first priority for use of the public lands*. As described by the Secretary of the Interior in 1902.

> Applicants for the grazing privilege are given <u>preference</u> in the following order:
>
> (a) Persons residing within the reserve.
>
> (b) Persons owning ranches within the reserve, but not residing thereon.
>
> (c) Persons living in the vicinity of the reserve owning what may be called neighboring stock.
>
> (d) Persons living at a distance from the reserve who have some <u>equitable</u> claim to use the reserve.
>
> Class (b) under paragraph 16 should not be construed so as to allow large stock owners to obtain the <u>preference</u> therein given, by simply buying or obtaining small ranches inadequate for their business. This will not be tolerated.[54] [Emphasis Added].

Although these regulations initiated a good start in the recognition of the prior rights on the federal lands, further progress in the recognition of these rights was made during the 1905 Denver meeting between the Forest Service and stockmen. During this meeting, the following report was made:

> The main points of agreement, worked out by the department and stock organizations, emphasized that those already grazing in the forest ranges would be protected in their priority of use [Law of Occupancy and Prior Appropriations Doctrine]: that reductions in the number of grazed stock would be imposed only after

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[52] *Department of Agriculture Annual Report to Congress 1891*, Washington: Government printing Office, p. 226.

[53] *Report of the Secretary of Agriculture*, *1891*.Washington: Government printing Office, 1892..

[54] *Forest Reserve Manual*. Washington: Government Printing Office, 1902.

fair notice; that small owners would have preference over large; that only in rare circumstances would the department seek total exclusion of stock from the forest; and that the policy of use would be maintained wherever it was consistent with intelligent forest management. Finally, some attempt would be made to give stockmen a voice in making the rules and regulations for the management of stock on local ranges through the establishment of forest advisory boards.[55]

In 1906, the above agreement was codified into regulation by the Forest Service "The Use Book." Those regulations permanently allocated grazing on the federal lands in the following manner:

Applicants for grazing permits will be given preference in the following Order:

(a) Small nearby owners.
Persons living in or close to the reserve those stock have regularly grazed upon the reserve range and who are dependent upon its use.

(b) All other regular occupants of the reserve range.
After class (a) applicants have been provided for, the larger nearby owners will be considered, but limited to a number which will not exclude regular occupants whose stock belong or are wintered at a greater distance from the reserve.

(c) Owners of transient stock.
The owners of stock which belong at a considerable distance from the reserve and have not regularly occupied the reserve range.

Priority in the occupancy and use of the range and the ownership of improved farming land in or near the reserves will be considered, and the preference will be given to those who have continuously used the range for the longest period.

It was by this system and the recognition of the long-standing use of the federal lands that created the permit and preference right system used by the Forest Service and Bureau of Land Management today.

5.0 Equitable Estates for Livestock Grazing on Federal Lands

After considering the Spanish and Mexican customs and culture as protected by Kearny's Law and the Treaty of Guadalupe Hidalgo, the promises made to the settlers and pioneers by the American presidents and Congress and the efforts made to protect and continue livestock grazing even after the creation of the forest reserves, the question to be answered by this comprehensive plan is whether those events have legal significance today. The answer to that question is YES.

It follows, if a person follows the law, he has the benefit of the law. The settlers in the New Mexico territories in obeying the local laws and customs, relying on the promises of the U.S. presidents and obeying the rules and regulations required after the creation of the forest reserves have earned an **equitable estate** for livestock grazing on public and federal lands.

An **equitable estate** is a "right or interest in land, which not having the properties of a legal estate, but merely being a right of which courts of equity will make notice, requires the aid of such court to make it available. These estates consist of uses, trusts and powers."[56] In cases of "conflict" between an equitable right and a legal title,

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[55]Hage, Wayne, *Storm over Rangelands*, Bellevue: Free Interprise Press, 1989, p. 161; Albert F. Potter, "Cooperation in Range Management," *American National Cattlemen's Association Proceedings, 16 (1913):55.*

[56]*Bouvier's Law Dictionary*, p. .530, (1st. Ed. 1868).

the courts will either suspend the enforcement of the legal title, "or decree that it [the legal title] shall be considered as held in trust for the benefit of the one having the equitable title. If equities are made out, the court will always require them to be satisfied before the legal title will be enforced."[57] [Emphasis added]. Actions to protect incorporeal rights are also within the jurisdiction of the equity court.[58] Equitable estate, according to Noah Webster's 1828 *American Dictionary of the English Language*, is "...The estate or interest of one who has a beneficial right in property, the legal ownership of which is vested in another..."

There are numerous reasons that the equitable estate in the federal lands created by Sierra County's custom and culture, recognized by the presidents and Congress and originally protected and recognized by the U.S. Forest Service and Bureau of Land Management should remain in full force and effect today.

1. **Livestock grazing on the unclaimed or federal lands is protected under Kearny's Code and the Treaty of Guadalupe Hidalgo**. As described above, it was by Spanish and Mexican custom that a person grazing the unclaimed lands earned an equitable estate in that land. The extent or size of the equitable estate was determined by the amount of water owned by the settler. "A territorial Statute of 15 February 1887 limited the cattle on a given range to the number which could be watered."[59]

2. **The original Forest Service regulations sanctioning livestock grazing on the federal lands recognized and protected the grazer's right to use the federal lands**. As stated above, only those livestock operators who could prove a prior use of the unclaimed lands, who bad adequate water rights or "commensurate property" and who lived in or near the federal lands could acquire a grazing permit. The fact that those grazing permits were originally taxed as private property further illustrates the Forest Service original intent of protecting livestock grazing on the forest reserves.

3. **Even today, the Forest Service and the U.S. Army recognize the monetary value of a grazing permit**. This is evidenced with the purchase of the Glenn Allotment by the New Mexico Department of Game & Fish and the condemnation proceedings by the U.S. Army when it acquired the grazing rights and the non-federal lands within the McGregor Range in southern New Mexico. The value placed on the Glenn Allotment was determined by the Forest Service. This documentation can be referenced in the Glenn Allotment file, Gila National Forest. The McGregor Range history is documented in a 1977 report from the Secretary of the Interior and the Secretary of Agriculture.[60]

4. **The Internal Revenue Service (IRS) also recognizes a grazing permit on federal lands as a property right**. In Shufflebarger v. Internal Revenue Service, 24 T.C. 980 (1955), the Court held:

> That the grazing of livestock on national forests is to be regarded as a substantial, well-established, and indefinitely continuing part of the national forests program, is not, according to our reading of the grazing regulations and the Forest Service Manual, open to question... It seems to us abundantly clear that the statute and regulations contemplate that once the right to a fair and just allotment of grazing land has been acquired under the established procedures that right, subject to some adjustment if it should become necessary for the protection of the range or for a more equitable distribution among preference holders, is to be regarded as an indefinitely continuing right. [emphasis added]

As determined by the IRS, that "indefinitely continuing right" is taxed upon the death of the owner for the

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[57] 27 *AM. Jur. Equity, §* 64 (1966).

[58] ibid

[59] Clark, Ira G., *Water in New Mexico*, Albuquerque: University of New Mexico Press, 1987, p. 147 (*New Mexico territorial laws of 1889*, Ch. 61, pp. 126-127).

[60] "McGregor Range History", *Study of Fees of Grazing Livestock on Federal Lands*, a Report from the Secretary of the Interior and the Secretary of Agriculture, Appendix C, Part 3(a), October 21, 1977.

fair market value of the permit. That value is based on the "animal unit" numbers or carrying capacity of the permit which is usually one third (1/3) of the value of the deeded lands.[61]

5. **Equitable estates on federal lands are taxed by some of the western states**. In California, grazing permits were recognized as equitable property rights in 1850, and are now taxed accordingly.

6.0 Summary-Federal Land Grazing Permits are an Equitable Estate

Therefore, based on the customs and cultures of the people, the promises of the presidents, the historical agreements made with the United States Forest Service, and the value of grazing permits as recognized by the Forest Service itself, the Internal Revenue Service and by some states, **Sierra County hereby recognizes that those federal land grazing permits acquired under proper authority to be an "equitable estate."** As such, these property rights shall have the full protection of the Fifth and Fourteenth Amendments to the U.S. Constitution.

[61] IRS letter of July 31, 1990 to Dick Manning, rancher; IRS letter of August 25, 1988 to R. B. Tippeconnic, U.S. Forest Service; IRS letter of September 30, 1983 to Robert Hadley.

NAVAJO NATION
CUSTOM AND CULTURE

Navajo Custom and Culture

It's hard to say for sure just when the Navajo first arrived in the Four-Corners area of New Mexico. There was nobody here to observe their arrival. However, it's easy to say that they became the preeminent denizens of the area. The invading Spanish or Anglo found them living in widely scattered family units, occupying loosely-defined territories. Without any distinct tribal leadership, individual bands were unaware of events affecting other tribal members. Their common bond, however, was their sacred beliefs and a love of the land.

The land provided the Navajo people with essentials that could be hunted, gathered and grown. Livestock were added to the resource pool in dramatic fashion. Around 1540, Coronado, in a search for gold, brought his conquistadors to Navajo land. He also brought horses, sheep and goats. Since the Spanish were uninvited and trespassing on Navajo land, the Navajo took horses and livestock as rightfully theirs. Horses, sheep and goats became as tightly woven into Navajo society as the splendid rugs that were to come.

For the next several centuries, an occasional raid or trade between the neighboring Apache, Ute, Pueblo or Spanish immigrant was the usual form of contact with the outside world. Although occurring earlier, serious Anglo exploration and settlement of Navajo land did not begin until the end of the Spanish American war in 1848. The Anglo invasion was accented and aggravated by the passage of the Homestead Act in 1862. The Navajo didn't always get along with the interlopers. The Navajo often found occasion to put down the herding staff and pick up the bow, arrow and rifle. Navajo history progressed with many a skirmish between the Navajo and their unwelcome company. The period 1846 to 1863 saw numerous attempts by the U.S. military to restrict Navajo activities. This segment of their history culminated, in 1863, with a final invasion by the U.S. Military led by Kit Carson, the vanquishing of the Navajo, in 1864, the Long Walk to Fort Sumner.

The Long Walk traversed three hundred rugged miles and took three wintry months for the survivors to accomplish. Nearly 9,000 Navajo were held captive in the barren Bosque Redondo Reservation. There was no food and only Pecos River water to drink. Wood for heat was as scarce as sickness and Starvation were abundant. 3000 died! Finally, in 1867, General Sherman was sent to Fort Sumner. He didn't fail to recognize the government's failure, and his solution, formalized in an 1868 Treaty, was to send the remaining Navajo back to where they came from. They could go home. And, in June, 1868, they did. Leaving Fort Sumner, they marched for two months before reaching Fort Wingate, where they were given food and livestock, allowed to mosey back to their ancestral homelands, and granted the right to resume their lives.

Of course, there were some conditions to this largesse. They would have to send their children to government schools and they could not resist the building of a transcontinental railroad through their land. This later event was to have unimagined, but spectacular, consequences.

The construction of the Santa Fe Railroad through New Mexico and Arizona was completed in 1883. The completion of the railway was also the inauguration of what is today a major Navajo industry... tourism. The pastoral Navajo people, who, as herdsmen, only dabbled in silversmithing and rug-weaving for personal use, experienced a new, vast, and still expanding market for their handicrafts.

Of equal, or perhaps even greater magnitude, are the changes that have come about as a result of the development of the mineral industry. The advent of the mineral recovery industry in Navajo Country produced startling results. Exploration for and recovery of mineral assets, and the subsequent royalties and tax revenues produced, led directly to an apparent improvement in the Navajo standard of living. Dollars were used to produce more and better roads, more and better schools, more and better entitlements, and to manage it all, more, if not necessarily better,

government.

The development of the tourist and mineral recovery industries altered the focus of economic activity from the agricultural to the mineral resource and service sectors. As an increasing population of Navajo discovered that they were living on a fixed and ever more crowded land base, alternative, non-ranching employment became more of a necessity. Services, trade, government and mineral recovery provide the bulk of today's paid employment opportunities.

Even so, the majority of Navajo people remain reliant on raising livestock for their livelihood. And, as always, it is done in the traditional manner. Little or no English is spoken. Hogans, corrals, and sweathouses are scattered piecemeal throughout the region, and form the residential base for claims to livestock use. Many, if not most, residences lack running water and/or electricity.

By large measure, today's Navajo people continue to share the same complicated belief system that has been handed down for generations. Lands have long been held for family use, and even though current economic reality has required some members to move away, the extended family concept is maintained and the family members who leave for work frequently return to enjoy the family surroundings. Economic goods are shared and the family works cooperatively to sustain all the members. Many follow tribal customs and practices, and maintain the personal, spiritual, and physical values and beliefs of their ancestors.

Navajo children are "born to the clan of their mother", but they are "born for" the clan of their father. Beliefs, values and correct behavior are learned in the home, as are herding, riding and animal husbandry skills. Young girls have the additional burdens of learning to cook and weave as well as tend to their even younger siblings. Grandparents and grandchildren still share common tenants which hold custom, practice and religion as inexorably tied to relationships with the land. The earth is considered sacred and many ceremonies are conducted to maintain the balance between Mother Earth and her human inhabitants. Actions and events can occur that disrupt one's harmony. A system of ceremonial rituals, chants and symbolic sand painting performed by a trained medicine man has been developed to restore harmony to an individual's life.

If the disruption of harmony is of a more political or simply quarrelsome nature, individuals and families also turn to other groups or individuals to mitigate or mediate a solution. Land Board members, as well as respected Bureau of Indian Affairs (BIA), Tribal, or Chapter personnel are often called upon to informally referee a disagreement between kin, clan or neighbor.

Navajo livestock operators are assigned permits to graze their livestock. These permits indicate a specific area that the permittee is authorized to use Land Boards, made up of elected Navajo live stockmen, have been given the responsibility of determining range unit boundaries and land users. The land board members, who themselves are part of the Navajo culture, have been greatly influenced by tradition. A grazing system has resulted that is made up of a large number of small range units, with 160 acres not being uncommon, each used by several permit holders grazing their own herds of sheep, goats, cows or horses on a year-long basis.

Considering the fact that the Four-Corners area of New Mexico is such a complicated checkerboard pattern of land status, a cooperative agreement for the grazing administration of this area was entered into by the BLM, BIA and the Navajo Nation in 1966. Under the agreement and its subsequent amendments, the grazing administration on 33 Indian communities was transferred from the BLM to the BIA. Two Navajo communities remain under BLM grazing administration. The 33 communities administered by the BIA include 1,118,742 acres, of which 268,951 are public domain, 34,601 are state lands, and 22,666 acres are owned by the Navajo Nation. The balance is either land held in Trust, or otherwise set aside for Navajo use. The BIA issues grazing permits to 2,425 operators on 935 separate range units. An additional 20 Homesteads and 3000 Individual Indian allotments also freckle the landscape. The Homesteads are 640 acres and the allotments average 160 acres in size. Grazing is managed by the individual

Indian owners with little BIA or Tribal supervision.[62] The Navajo Nation has sole jurisdiction over ranch operations on 1,015,439 Tribally owned acres, 134,233 public domain acres, and 128,350 acres of land owned by New Mexico.[63]

In the arid, beautiful environment of the Four-Corners area of New Mexico, range plants and animals, and the ever-present Navajo herdsmen, continue to be a major part of the panorama. And although they now share space with pump-jacks on the horizon and concessionaires along the road, they remain the primary icons of land use among the red mesas on the high desert. Man or woman, whether astride the saddle or on foot, whether attired in a new Carhartt coat or shrouded in an old blanket, the Navajo, his dog, and his herd remain as one with the land.

The above is my abbreviated effort to describe the Custom and Culture of the Navajo in New Mexico. It is a short synopsis of their history. Although facts and figures on all facets of Navajo life are available, including statistics on birth, employment, income, demographics and death, I have forgone a discussion of them. By design, my treatment was not a scholarly one. It does not analyze events. It does not attempt to delve into the depths of detail available on the subject. Suffice it to say that for every sentence you've read, a chapter could be written. You won't find citations, (with two obvious exceptions), because there aren't any. Statements were made simply from knowledge gained in my numerous years as an employee with the BIA in Crownpoint, NM.

Allan Vesely
1/29/97

[62] Bureau of Indian Affairs, Navajo Area, Eastern Navajo Agency Statistics

[63] Title, Records and Appraisal Section, Navajo Land Department, Division of Natural Resources, October 24, 1996, memo to Eastern Navajo Land Board members

PUEBLO OF ACOMA
CUSTOM AND CULTURE

Pueblo of Acoma Custom and Culture:

HISTORY:

The Pueblo of Acoma people; and other Pueblos, have lived in this region of the Southern Colorado Plateau from time immemorial. Archeologists now find our ancestry goes back longer than 10,000 years. For Acomas, even as we have resided on top of Acoma Mesa for only 1,000 years we lived in the Acoma Valley, along Cebollita Canyon, and in the Rio San Jose River Valley for much longer than that. Our migration history tells that we came from the north and we identify Chaco Canyon and Mesa Verge as our ancestral places. We are known as Acomas living at Acoma because we were looking for a permanent homeland that was “haakuu” (a place prepared) for our people. When the Spanish came they called our villages “pueblos", and we are now called Acoma Pueblo.

Today, much of our ancient land is private, state, and federal land. We lost 1,500,000 acres to the federal government even as we proved aboriginal title in Pueblo of Acoma vs. United States of America. The Spanish recognized some of our land and today 95,000 acres is known as the Pueblo of Acoma Grant. Much of our remaining landholding we have had to recover from the United States. We have had to purchase thousands of acres ourselves. Our present land base consists of 386,000 acres.

We are part of this land. It is our permanent homeland. Our elders tell us we are already underneath the land and we are part of it. The Thousands of ruins in this region attest to the ancient occupation of our people. We have always been agriculture people, residing together in matrilineal clanship system. We were and remain a peaceful, spiritual people who lived conservatively and gratefully with the land and natural resources. We gave thanks to the Great Creator for the water, animals, clay and stone, and all natural resources as we made use of them for daily sustenance. This remains our way of life.

PRESENT

Our way of life is centered around our ancient village, commonly known as "Sky City." We claim to be the oldest, continuously occupied village in North America. The three foreign governments of Spain, Mexico, and the United States, gave canes of recognition to the Acoma People. These canes which are carried by tribal leaders recognize the sovereign attributes of the tribe. Our modern political government remains traditionally selected by traditional, religious leaders.

We are a closely knit tribal community. We have Spanish and English names yet we also have our own Acoma names. We are collective owners of tribal land. Individual lands for farming and residential purposes are allocated by traditional methods. Our people use their land assignments for homes, farming, and ranching. The Acoma people are thriving economically. The tribe was the first Indian gaming tribe in New Mexico and we now operate Sky City Casino. We are also cattlemen, individually, and as we operate the tribal Bar-l5 Ranch and Red Lake Ranch. We rely heavily on tourism and this has proven to be a mainstay of the tribal economy, both for tribal revenues and for community benefit as our people market their arts and crafts.

Language and traditional ways remain strong in the Acoma culture. Our way of life revolves around traditional, religious practices. We continue to hold religious, ceremonial events in private. We pray for all people that we may all be well and live good and peacefully and that we may have rain for our crops and the wildlife. We continue to pray at religious shrines located on private, state, and federal land, such as on Mt. Taylor and El Malpais National Monument. Yet we are a very, open community. We respect and we have good relationships with the neighboring Navajo, Hispanic, and Anglo communities.

FUTURE BASED ON CUSTOM AND CULTURE

We intend to remain Acoma, living on our permanent Acoma homeland. Our population is increasing on the Acoma Indian Reservation. Even as we diversify our tribal economy into other tourism oriented businesses we encourage tribal people to make use of the land for farming. This is difficult when there is little water. We need help from state and federal resources to respect, develop, and protect our water resources. We expect that local governments, the state, and the federal government understand and respect the sovereignty of the Acoma tribe. We are a sovereign indigenous nation. We have all the rights to govern our ourselves and to establish all laws and policies for ourselves and to freely self-determine our way of life as a nation.

There are state and federally lands being leased by the Acoma tribe. These are aboriginally claimed lands that were taken from us under state and federal laws. Now, in essence we pay to lease our aboriginal land. It is the tribal goal to see the return of these lands to we the rightful owners. We intend to work with state and federal government to make this a justful reality.

Appendix F

The National Environmental Policy Act of 1969, as amended

TITLE 1

DECLARATION OF NATIONAL ENVIRONMENTAL POLICY

Section 101. (a) The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

(b) In order to carry out the policy set forth in this Act, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may -

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

(2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;

(3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

(4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;

(5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

(6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

(c) The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.

Section 102. The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in the Act, and (2) all agencies of the Federal Government shall -

(A) Utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;

(B) Identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;

(C) Include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on -

(i) The environmental impact of the proposed action,
(ii) Any adverse environmental effects which cannot be avoided should the proposal be implemented,
(iii) Alternatives to the proposed action,
(iv) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
(v) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. . . .

(D) Any detailed statement required under subparagraph (C) after January 1, 1970, for any major Federal action funded under a program of grants to States shall not be deemed to be legally insufficient solely by reason of having been prepared by a State agency or official, if:

(i) the State agency or official has statewide jurisdiction and has the responsibility for such action,
(ii) the responsible Federal official furnishes guidance and participates in such preparation,
(iii) the responsible Federal official independently evaluates such statement prior to its approval and adoption, and
(iv) after January 1, 1976, the responsible Federal official provides early notification to, and solicits the views of, any other State or any Federal land management entity of any action or any alternative thereto which may have significant impacts upon such State or affected Federal land management entity and, if there is any disagreement on such impacts, prepares a written assessment of such impacts and views for incorporation into such detailed statement.

The procedures in this subparagraph shall not relieve the Federal official of his responsibilities for the scope, objectivity, and content of the entire statement or of any other responsibility under this Act; and further, this subparagraph does not affect the legal sufficiency of statements prepared by State agencies with less than statewide jurisdiction.

(E) Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

(F) Recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designated to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment;

(G) Make available to States, counties, municipalities, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment;

(H) Initiate and utilize ecological information in the planning and development of resource-oriented projects; and . . .

Section 105. The policies and goals set forth in this Act are supplementary to those set forth in existing authorizations of Federal agencies.

Council on Environmental Quality (CEQ) Regulations For Implementing The Procedural Provisions Of The National Environmental Policy Act 40 CFR §1500.2

Federal agencies shall to the fullest extent possible:

(a) interpret and administer the policies, regulations. and public laws of the United States in accordance with the policies set forth in the Act and in these regulations.

(b) Implement Procedures to make the NEPA process more useful to decisionmakers and the public; to reduce paperwork and the accumulation of extraneous background data; and to emphasize real environmental issues and alternatives. Environmental impact statements shall be concise,
clear, and to the point, and shall be supported by evidence that agencies have made the necessary environmental analyses.

(c) Integrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively.

(d) Encourage and facilitate public involvement in decisions which affect the quality of the human environment.

(e) Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human
environment.

(f) Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human
environment.

Appendix G

The Federal, State and local Agency letters received on the Draft RMPA/EIS are included in this Appendix. They are listed below in the order they were received.

Legislature of the State of New Mexico

Eddy County Board of Commissioners

State of New Mexico Environment Department

USDA Natural Resources Conservation Service

County of Lincoln

Hidalgo County

Sierra County Treasurer

U.S Department of the Interior National Park Service

County of Otero

U. S. Environmental Protection Agency

State of New Mexico Department of Game and Fish

Catron County

New Mexico Association of Conservation Districts

State of New Mexico Commissioner of Public Lands

U.S. Department of the Interior Fish and Wildlife Service

The Legislature of the State of New Mexico

FORTY-FOURTH LEGISLATURE
FIRST SESSION, 1999

SENATE MEMORIAL 13

INTRODUCED BY
SENATORS PHIL GRIEGO, PETE CAMPOS AND PATRICK H. LYONS

A MEMORIAL

SUPPORTING AND ENDORSING THE HUMAN DIMENSION STANDARD OF THE BUREAU OF LAND MANAGEMENT OF THE UNITED STATES DEPARTMENT OF THE INTERIOR FOR PUBLIC LAND MANAGEMENT DECISION-MAKING.

WHEREAS, the Bureau of Land Management of the United States Department of the Interior recently drafted a statewide Resource Management Plan Amendment that proposes a human dimension standard for livestock grazing management decisions; and

WHEREAS, the Human Dimension Standard considers economic, cultural, historical and social welfare aspects of permittees, lessees and their communities; and

WHEREAS, this standard will allow the Bureau of Land Management to consider the human dimension as important as endangered species and water quality; and

WHEREAS, Agriculture and the Ranching Industry are vital to the culture, history, social structure and economy of the State and its rural communities;

NOW, THEREFORE, BE IT RESOLVED BY THE SENATE OF THE STATE OF NEW MEXICO that it support and endorse the Bureau of Land Management's Human Dimension Standard for public land management decision-making; and

BE IT FURTHER RESOLVED that copies of this Memorial be transmitted to the New Mexico Congressional Delegation, to the Secretary of the Interior and to the Director of the Bureau of Land Management and the New Mexico Commissioner of Public Lands.

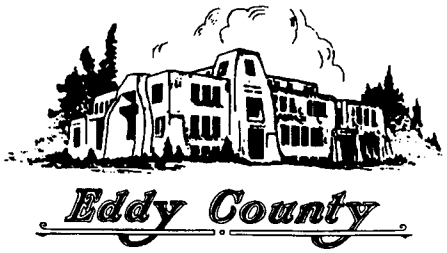
Signed and Sealed at The Capitol, in the City of Santa Fe.

Walter D. Bradley, President
New Mexico State Senate

Margaret Larragoite, Chief Clerk
New Mexico State Senate

Eddy County
Board of Commissioners

Ray Camp, Chairman
Julius Doubrava
Glenn Collier
Laurie Kincaid
Lucky Briggs



Eddy County Manager
Steve Massey

101 W. Greene St., Suite 225
Carlsbad, New Mexico 88220
Phone (505) 887-9511
Fax (505) 887-1039

April 22, 1999

John W. Whitney, BLM Project Leader
Bureau of Land Management
P. O. Box 27115
Santa Fe, NM 87502-0115

RE: New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management

Dear Mr. Whitney:

The Eddy County Commission appreciates the opportunity to comment on the draft of the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management. The County Alternative is the position we believe will have the least amount of impact on the custom, culture, social, economic, and tax payers' well being of our County. This Alternative has the same goals as the other alternatives but proceeds slower to the goal, which lessen the fracture of tax base and hardship on permittees. We believe this will give better decision making at the local level.

We are in disagreement upon several parts of the draft and feel these parts need further explanation or analyzed more in detail. These sections are as follows.

Chapter 4 - page 25 & 26 - Mineral Resources

The Bureau of Land Management (BLM) stated that standards would apply to oil and gas yet also stated it would not amend mineral resource and minerals that could be leased because of existing statues and regulations. However, 43 CFR 3100 regulations on oil and gas gives the BLM authority to amend land use plans. Such plans as the Environmental Assessments and the Environmental Impact Statements could change State and Local BLM RMP's. It is our understanding the BLM is now receiving comments on the above regulations from oil and gas on proposed changes of regulations for federal land.

Implementation of these regulations in the proposed changes by the Federal Government may affect the standards and grazing guidelines in the State RMP. In addition, the State of New Mexico and Local County Governments may also be affected. The County requests that you respond to these questions and comments to this regulation and proposed changes.

Chapter 1 - page 4

The County has commented before that peer science review should be included in the RMP. This should be inserted in the third paragraph on the right hand page. This would support the endangered species document in the RMP. For example, If federal agencies make a decision on a threatened or endangered species, under the full force and effect, this could and has caused a permittee to remove livestock from all or part of his or her allotment. This decision should include peer science review. The peer science review would include the Bio Dimension and the Human Dimension.

Economic Analysis

The economic analysis appears to be incomplete. Does the BLM propose to have 428 allotments meeting the criteria in 21 years? What has the BLM budgeted for improvements? If the BLM does not have the money budgeted, will the cost be passed on to the permittee? Moreover, if the permittee cannot meet the cost, would livestock have to be removed from the allotment?

Why were the allotments meeting the Standard not included? If allotments are meeting the Standard why are livestock numbers going down instead of up? Has preference not been given for full carrying capacity of allotments. Was the Central Mountain Region the only region analyzed for the State of New Mexico? We feel the other regions in New Mexico need to be included for a sound analysis of the regions and the State.

The Human Dimension is weak and needs to be analyzed deeper on the following criteria: Equity Analysis, Taking, Civil Right Burden, Environmental Justice, Social Well-being, and Cultural Stability.

The BLM has written finding no significant impact (FONSI). This may not have a national base impact but we feel it will have impact at the County basis.

Conclusion

The Eddy County Board of Commission believes this draft has not fully analyzed the content and impact that could affect individuals and County Government under a partial list of federal laws. These laws include NEPA CEQ, EO 12898 Environmental Justice, EO 1230, PRIA and Taylor Grazing Act, and FLMPA.

We would like to ask for an extension of the document until an amendment to the Environmental Impact Statement is published that would include all data for all regions.

Whereas the Central Mountain Region data is important, we feel the incorporation of the data from other regions, with higher percentage of federal land, is crucial. Furthermore, we ask to have adequate time to comment on the additional information. As a final request, we would like the BLM to comment on these questions to aid in our clarity of the RMP.

On behalf of the Commissioners, I thank you for your consideration of our requests.

Sincerely,

Ray L. Camp

Ray Camp, Chairman
Eddy County Board of Commissioners

State of New Mexico
ENVIRONMENT DEPARTMENT
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-2855
Fax: (505) 827-2836

GARY E. JOHNSON
Governor

PETER MAGGIORE
Secretary

April 30, 1999

John W. Whitney
BLM Project Leader
Bureau of Land Management, (NM-931)
P.O. Box 27115
Santa Fe, N.M. 87502-0115

Dear Mr. Whitney:

RE: NEW MEXICO STANDARDS FOR PUBLIC LAND HEALTH AND GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT: DRAFT STATEWIDE RESOURCE MANAGEMENT PLAN AMENDMENT AND ENVIRONMENTAL IMPACT STATEMENT; US DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, NEW MEXICO STATE LAND OFFICE; FEBRUARY 1999

This transmits New Mexico Environment Department (NMED) staff comments concerning the above-referenced document.

As mentioned in the referenced document, the standards found in the New Mexico Water Quality Control Commission's, State of New Mexico Standards for Interstate and Intrastate Streams apply to all streams and rivers in New Mexico.

River and stream reaches that are not fully supporting designated uses in New Mexico are listed in the State of New Mexico Water Quality Control Commission's, Water Quality and Water Pollution Control in New Mexico 305(b) list and the 1998-2000 State of New Mexico 303(d) List for Assessed Stream and River Reaches.

As a result of a lawsuit filed by two environmental groups against the U.S. Environmental Protection agency, the Department's Surface Water Quality Bureau (SWQB) has developed a schedule of monitoring all streams and rivers in New Mexico and developing Total Maximum Daily Loads (TMDLs) as appropriate. As part of this process, the State performs water quality monitoring, outlines current water quality conditions, determines load reductions needed, outlines sources of pollutants, and submits implementation plans to bring affected streams into compliance. The SWQB is monitoring New Mexico's streams on a five-year rotating schedule; the Bureau encourages and welcomes any applicable input from BLM to this process.

Because water quality is directly related to the conditions of watersheds and riparian areas, the NMED supports best management practices that will improve and protect these resources.

We appreciate the opportunity to review this document. Please let us know if you have any questions.

Sincerely,

Gedi Cibas, Ph.D.
Environmental Impact Review Coordinator

NMED File No. 1247ER

USDA

United States Department of Agriculture

Natural Resources Conservation Service

6200 Jefferson NE, Room 305
Albuquerque, New Mexico
87109-3734
Phone: (505) 761-4400
Fax: (505) 761-4462

RECEIVED
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SANTA FE, NEW MEXICO

April 26, 1999

John W. Whitney, BLM Project Leader
Bureau of Land Management (NM-931)
P.O. Box 27115
Santa Fe, New Mexico 87502-0115

Dear Mr. Whitney:

I wish to thank the Bureau of Land Management (BLM) for the opportunity to provide comments on the "Draft Statewide Resource Management Plan Amendment/Environmental Impact Statement (EIS) for New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management".

The following are New Mexico Natural Resources Conservation Service (NRCS) comments as requested.

1. Page 1 – 1 , The definition of an Ecological Site is as follows. An ecological site, as defined for Rangeland, is a distinctive kind of land with specific physical characteristics that differ from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. (NRCS – National Range & Pasture Handbook, 1997)

2. Page 2-1 – last paragraph – When NRCS is the lead agency in the CRMP process NRCS will assure that the NEPA process is followed on the planning area. NRCS does not routinely do environmental assessments (EA) on federal lands. EA development on public lands is the responsibility of the land-administering agency. NRCS would not have authority implement NEPA on BLM lands. NRCS would however assure that the land administering agency approved of the CRMP and it would be the responsibility of the land-administering agency to assure NEPA compliance on lands under their jurisdiction. .

3. Page 2 – 2 – RAC Alternative – Standard for Public Land Health – Upland Sites Standard: There is a typing error on Column 1 last paragraph first sentence. Should read "Upland ecological sites are in a productive and sustainable condition…".

4. Page 2 – 3, Riparian Sites Standard – Indicator for this standard – Streambank Stability – Add "Minimal" shearing & sloughing. Shearing & sloughing indicates a degraded condition, and unstable streambank.

5. Page 2 – 3, Coordinated Resource Management & Planning (CRMP) should be included as an indicator for the Human Dimension Standard.

6. Page 2 – 4, Section 1. (d) Season, duration, frequency and intensity of use should be flexible and consider climate, topography, kind, class and health/condition of livestock. Add the following. **"and should also consider the needs of the plant community".** Season, duration, frequency and intensity of use should always consider the needs of the plants as well as the needs of animals.

7. Page 3-1, Biome types: Not all pinon-juniper (PJ) types are considered woodlands. Many PJ sites are grassland sites that have been invaded with PJ.

8. Page 3 –17, Soil Erosion second paragraph "Natural litter…): Please note that Alfisols, Aridisols, Entisols almost always have less than 1% organic matter in the top 10 inches of the soil surface.

9. Page 4 – 19, Soils: All soils in New Mexico would respond differently to drought or moisture, not just upland soils.

If you have any questions concerning these comments or require further clarification please contact State Rangeland Management Specialist George Chavez at (505)761-4421 or Email: fchavez@nm.nrcs.usda.gov.

Sincerely,

ROSENDO TREVINO III
State Conservationist

cc:
Kenneth B. Leiting, ASTC/ Technology, NRCS, Albuquerque, NM
George Chavez, State Rangeland Management Specialist, NRCS, Albuquerque, NM

County of Lincoln

Post Office Box 711 • Carrizozo, New Mexico 88301-0711 • (505) 648-2385

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SANTA FE, NEW MEXICO

May 4, 1999

Mr. John W. Whitney, BLM Project Leader
Bureau of Land Management
P.O. Box 27115
Santa Fe, New Mexico 87502-0115

RE: New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management

Dear Mr. Whitney:

On behalf of the Board of Commissioners of Lincoln County, I wish to express my thanks for your consideration in the design and input on the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.

We favor the County Alternative evidenced by having the least impact on custom, culture, social, economic and resident taxpayers' well-being in Lincoln County. We feel the process is rushed in nature and will require major changes if not all these alternatives are utilized. Some of our concerns are as follows:

The following definition of "Riparian" as stated on page 65 in Glossary states: "an area of land directly influenced by permanent water. It has visible vegetation and physical characteristics reliant upon continuous presence of water. Lakeshores and streambanks are typical riparian areas. Sites such as ephemeral streams or washes that exhibit the presence of vegetation which is dependent on free water in the soil would be considered riparian areas."

We would recommend omission of the last sentence in order to eliminate contractions to the rest of the definition.

The BLM has recently acquired large tracts along the Rio Bonito Riparian corridor, and we wish to clarify definitions and their impacts before final implementation occurs.

We would further recommend that the Standards and Guidelines recognize historical custom and culture including all historical agrarian pursuits and would further ask for a policy of No Net loss of Private Properties, including water rights with the borders of Lincoln County, New Mexico.

In conclusion, along with our county's custom and culture, we would like also to impress upon the agency and joint leads the diversity of agriculture within our county and a need for maintenance of these diverse levels instead of general standardization statewide.

Sincerely,

Thomas F. Stewart
Lincoln County Manager

ASSESSOR / 648-2306
P.O. Box 38

CLERK / 648-2394
P.O. Box 338

SHERIFF / 648-2342
P.O. Box 278

TREASURER / 648-2397
P.O. Box 709

State of New Mexico
HIDALGO COUNTY
300 S. SHAKESPEARE
Lordsburg, New Mexico 88045

RECEIVED
B.L.M.-MAILROOM
99 MAY 17 AM 10: 14
STATE OFFICE
SANTA FE, NEW MEXICO

John W. Whitney, BLM Project Leader
Bureau of Land Management (NM-931)
PO Box 27115
Santa Fe, NM 87502-0115

May 13, 1999

Subject: Comments on the Draft EIS Standards for Public Land Health and Guidelines for and Livestock Grazing Management.

Dear Sirs:

We recommend the BLM select the County Alternative. Our reasoning is as follows:

The BLM estimates the County Alternative will effect fewer allotments than either the RAC or the Fallback Alternative. This is significant because:

A. BLM funding may not be available to assist in improving range conditions on affected allotments. The rancher may have to pay for the needed improvements while at the same time being forced to reduce allotment numbers. To improve range conditions in our county large scale brush control will be required. If an analysis had been completed requiring ranchers to pay for the brush control while cutting cattle numbers, the estimated of ranchers converting to real estate would probably be much higher than this EIS estimates (22%).

B. The analysis states "...for the long term, communities and ranching operations may be more stable and in better conditions financially, socially and culturally under the RAC Alternative when compared to the Fallback or County Alternatives." (page 4-31). While this statement is correct based on the analysis, if the ranch is unable to survive the short term, the long term is irrelevant.

C. The analysis is flawed. The reason the long term analysis for the RAC Alternative is better than the County Alternative is because more allotments are effected in the RAC Alternative. The analysis then brings the affected allotments up to preference numbers by targeting resources of these allotmens, while the unaffected allotments retain their current numbers. It should be the goal of all of us to bring every allotment up to preference. For instance, after ten years most of the resources directed at the affected allotments would be complete. The next ten years the unaffected allotments should receive the resources. An analysis of this scenario would likely show the County Alternative would be the best Alternative both in the short term and the long term.

We extend our appreciation to the BLM for accepting Hidalgo County as a cooperating agency in this project. We also thank The Lt. Governor for providing the vital leadership to the cooperating counties. We understand the additional agencies extended the time frame of this project; however, we believe it has resulted in a better analysis and document.

Sincerely,

Lloyd V. Payne

Lloyd Payne
County Commisioner Chairman

cc: Office of the Lieutenant Governor/Cecilia Abeyta
NMSU/Department of Ag Economics/Dr. John Fowler

The Southwest Gateway To The Land Of Enchantment

SANDI CHATFIELD

SIERRA COUNTY TREASURER

Sierra County Courthouse
311 Date Street
Truth or Consequences, New Mexico 87901
Phone (505) 894-3524 / 743-3306
FAX (505) 894-9548

Sharon Coffee
Chief Deputy

Margaret Chavez
Senior Deputy Clerk

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SANTA FE, NEW MEXICO

May 14, 1999

John W. Whitney, BLM Project Leader
Bureau of Land Management
P.O. Box 27115
Santa Fe, N.M. 87502-0115

RE: Draft EIS for New Mexico Standards & Guidelines for Public Land Health

Dear Mr. Whitney:

I have a number of concerns over the draft EIS for the New Mexico Standards & Guidelines for Public Land Health.

**The economic analysis is flawed in that it does not consider or direct resources to the unaffected allotments, resulting in the RAC Alternative appearing to be the best Alternative in the long term.*

**The economic analysis should have considered resources directed to the unaffected allotments after ten years, by which time the affected allotments will have completed their improvements. If this economic analysis had been used in the EIS, the results would probably have shown the County Alternative to be the best in the short term, as well as the long term.*

**Fewer allotments will be adversely affected if the County Alternative is selected versus either the RAC or the Fall back Alternatives.*

**It will cost a substantial amount of money to bring affected allotments up to standards. The assumption, in the EIS, that the BLM will pay for 100% of the improvements is flawed, because the total improvements, while at the same time reducing allotment numbers, this will cause the estimated number of ranchers converting to real estate much higher than the 22% estimated in the EIS.*

The EIS is void of mitigation measures that would reduce the economic, financial, social cultural effects on ranch families and rural communities.

The EIS fails to include state and county human dimension impacts.

The EIS includes inaccurate economic impacts that used Adjudicated Preference 20 years for long range projections without adequately displaying negative impacts in the short run (over the next 7 years).

Thank you for the opportunity to comment and hope that you take these points into consideration.

Sincerely,

Sandi Chatfield
Sierra County Treasurer

Cc: Governor Johnson

United States Department of the Interior

National Park Service
Intermountain Support Office - Denver
12795 West Alameda Parkway
Post Office Box 25287
Denver, Colorado 80225-0287

IN REPLY REFER TO:

RECEIVED
B.L.M.-MAILROOM
99 MAY 17 AM 10:32
STATE OFFICE
SANTA FE, NEW MEXICO

May 12, 1999

John W. Whitney
BLM Project Leader
Bureau of Land Management (NM-931)
P.O. Box 27115
Santa Fe, NM 87502-0115

Re: New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management/Draft Statewide Resource Management Plan Amendment and Environmental Impact Statement

Dear Mr. Whitney:

We reviewed the *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management/Draft Statewide Resource Management Plan Amendment and Environmental Impact Statement* and have no comments. This represents the consolidated comments of the National Park Service. If you should have any questions, please contact me at (303) 969-2377.

Sincerely,

Greg Cody

Greg Cody
NEPA/Section 106 Specialist
Intermountain Region-Denver Support Office
National Park Service

G-9

COMMISSION/ADMINISTRATION
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State of New Mexico
County of Otero

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May 12, 1999

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SANTA FE, NEW MEXICO

John W. (J.W.) Whitney, Project Leader
BLM (NM-931)
P.O. Box 27115
Santa Fe, NM 87502-0115

Dear Mr. Whitney:

Otero County respectfully submits the following comments on the BLM Draft Statewide resource Management Plan Amendment/Environmental Impact Statement - New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.

1. Needs assessment is not clear. Purposes are not well defined.

2. The no action alternative/fallbacks should not be the baseline. The state wide E.I.S. is being done because the fallback received vigorous criticism. This makes the baseline a document that is considered unacceptable to both the state and counties.

3. Bad multiple data base information on permitees from the BLM caused early confusion and excess reworking of information for the state team.

4. BLM has different interpretation of the law then the state and counties concerning NEPA, executive orders, Rules and Regulations. These differences were never mitigated or resolved.

5. No lists of statutory compliance were listed in the document, which would define what requirements are mandated under the law by the agency.

6. Not enough scoping "Per NEPA" and Environmental justice to involve Indian Tribes and other ethnic and social economic groups.

7. No consistency analysis was included (per FLPMA 43 CFR-1610.3).

8. BLM needs to consider its own budget. The agency has not funded enough money to achieve their 10 year goals. This is effecting their conditions on the ground. At that point,

the permittee suffers the effects. This was not looked at in the EIS.

9. Statements that the cattle are causing the problem in riparian areas are not backed up by science and this should be deleted or science provided.

10. The memorandum of understanding between the BLM and New Mexico Environment Department, to over see water issues in the state, is legally questionable.

11. The Human Dimension analysis was left out in the form as written by the State team. The BLM said as written, the Human Dimension was unacceptable. Early in the process in November of 1997, it was agreed, that the state would write this section. The BLM's retort in the final months of the process was, they would rewrite the Human Dimension with the State Team, but it would be subject to changes by their editors and lawyers. Because of the conflict, some counties submitted a separate document (per NEPA) in the form of an EIR. These were not considered nor were they printed.

    Listed are some but not necessarily all requirements in the Human Environment.

    A. E.O. 12630
    B. E.O. 12898
    C. E.O. 12291
    D. E.O. 13045
    E. 18 U.S.C. 241 and 45 (A) - (1)
       1994 C.R.A. Title VII
    F. Regulatory Flexibility Analysis
    G. Duplication of Effort (NEPA)

    By not doing a complete analysis, irreparable and irreversible damage can be caused to the counties customs and culture and also, make the EIS incomplete.

12. An Environmental Justice Analysis (E.O. 12630) was not developed when the law is clear on Environmental Justice. The BLM's comment is that they are not targeting any particular group, so no complete analysis is necessary. This does not provide for the best possible science (NEPA) nor satisfies the intent of the law.

13. A mitigation plan was never developed. BLM said that plan could be developed on the ground later. This does not meet the standard of NEPA or E.J. (E.O. 12630).

14. The economic analysis is incomplete. This analysis should show all permits moving toward preference, not just the permits below standard. Also, all regions of the State should be included. This analysis must be completed or the EIS is incomplete.

Otero County strongly believes the D.E.I.S. is incomplete and that the science and demographic information, are on the first issue, easily achievable and on the later, readily available. The science would provide the best science available (NEPA). The state's demographic information, both on minorities and poverty levels, would show the agency needs to complete the equity analysis.
Incomplete information and facility information, will lead to an incorrect decision.

Respectfully,

Richard L. Zierlein
Otero County Commissioner

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

May 12, 1999

Mr. John W. Whitney
BLM Project Leader
Bureau of Land Management
P.O. Box 27115
Santa Fe, New Mexico 87502-0115

Dear Mr. Whitney:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the US Department of the Interior, Bureau of Land Management (BLM), New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management, Draft Environmental Impact Statement (DEIS).

The DEIS documents the effects of adopting statewide standards for public health and guidelines for grazing management on BLM administered lands in New Mexico. Any standards or guidelines would be incorporated into eight existing resource management plans in New Mexico. The proposed standards and guidelines were developed in partnership with the statewide Resource Advisory Council (RAC) and with other public input. Another alternative is to adopt standards and guidelines developed by the New Mexico/Arizona Coalition of Counties, or otherwise referred to as the County Alternative. Both alternatives are being proposed in accordance with revised regulations for live stock grazing on BLM lands (43 CFR 4100).

The DEIS fully describes the proposed action, explores and objectively evaluates reasonable alternatives, provides evidence and analyses of impacts on the affected environment, demonstrates coordination with other agencies with special expertise or jurisdiction by law with respect to environmental impacts, provides for mitigation and monitoring, and documents efforts to involve the public.

EPA classifies your DEIS and preferred action as "LO," i.e., EPA has "Lack of Objections" to either alternative ie; the RAC or the County Alternative. Both appear to have beneficial merits that should contribute positively toward public health protection and grazing management. Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act, to inform the public of our views on proposed Federal actions.

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EPA appreciates the opportunity to review the DEIS. We request that you send our office one (1) copy of the Final EIS at the same time that it is sent to the Office of Federal Activities (2251A), EPA, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20044.

Sincerely yours,

Michael P. Jansky, P.E
Regional 309 Coordinator

GOVERNOR
Gary E. Johnson

DIRECTOR AND SECRETARY
TO THE COMMISSION
Gerald A. Maracchini

STATE OF NEW MEXICO
DEPARTMENT OF GAME & FISH

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May 17, 1999

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Mr. John W. Whitney, BLM Project Manager
Bureau of Land Management (NM-931)
P.O. Box 27115
Santa Fe, NM 87502-0115

Re: Draft Statewide Resource Management Plan Amendment/Environmental Impact Statement, New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management. NMGF Doc. #6674.

Dear Mr. Whitney:

The Department of Game and Fish (Department) has reviewed the Draft Statewide Resource Management Plan Amendment/Environmental Impact Statement, New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (DEIS). The DEIS analyzes the impacts of adopting statewide standards for public land health and guidelines for grazing management on lands administered by the U.S. Bureau of Land Management (BLM) in New Mexico.

The Department recognizes the importance of rangeland and riparian health in maintaining productive wildlife populations and sustainable human economies. Therefore, the Department supports the BLM's effort to improve rangeland and riparian conditions, thereby guaranteeing the long-term viability of both wildlife and human communities.

BACKGROUND

The DEIS analyzes the following four alternatives:

- The no action alternative uses land management and grazing practices that were in effect before the current grazing regulations were approved in February 1995. This alternative cannot be implemented, but provides for baseline comparison with the other alternatives.
- Standards and guidelines developed by the New Mexico Resource Advisory Council (RAC), which is the BLM's preferred alternative;
- Standards and guidelines developed by the New Mexico members of the Arizona/New Mexico Coalition of Counties; and

- Fallback standards and guidelines defined in the February 1995 grazing regulations (BLM began implementation of the fallback standards and guidelines on 1 March 1998, where the standards had not been met and livestock grazing was a contributing factor).

As stated in the abstract, adoption of alternatives 2, 3, or 4 would require changing the existing land use plans to make them consistent with the adopted standards and guidelines. The standards and guidelines selected will be incorporated into eight BLM resource management plans (RMP's) that affect approximately 13.5 million acres. Of 2,193 grazing allotments, 287 to 480 allotments would not meet the standards, depending on which alternative is selected.

GENERAL COMMENTS

1. Based on our interpretation of the National Environmental Policy Act (NEPA) regulations, the most problematic procedural concern with the DEIS is that it does not adequately present the anticipated impacts and the alternatives in comparative form, which would allow the reader to distinguish between alternatives. Chapter 4 discusses the anticipated effects of implementation of each of the four alternatives on natural resource criteria. The Upland Vegetation, Water and Special Status Species sections for each alternative consist of repetitious verbatim text. These repetitious statements do not clearly differentiate the potential impacts of each alternative on these resources to provide a clear basis of choice. Similarly, the Big Game, Upland Game/Nongame and Waterfowl/Fisheries subsections for each Major Land Resource Area (MLRA) often contain verbatim language that also does not distinguish qualitative differences between alternative implementation on these resources. Clearly defined comparative analysis of each alternative would allow for well defined analysis of alternative implementation on wildlife resources in the various MLRA's and special status species. We recommend that these sections of the document be rewritten to more clearly define the differences between anticipated potential effects of each alternative. Providing comparative information in a table format for all resource criteria evaluated would be especially helpful in distinguishing differences between the alternatives.

2. Page 3-13 states: "Based on existing inventory data, lotic [running water] riparian areas on public land in New Mexico total 427 miles, containing 13,285 acres of riparian habitat located in 244 stream segments." Page 3-17 states: "Comparatively, the number of miles of perennial streams on public lands is small, only 433 (USDI, BLM 1997 Public Land Statistics). There are no estimates of the miles of ephemeral channels on public lands." Based on these statements, the riparian segments are apparently only perennial stream segments. The DEIS should provide a discussion of stream types that were analyzed and omitted from analysis (i.e., intermittent), discuss the rationale for this decision, and provide a comparison of the biological and functional nature of the different stream types, to give the reader some idea of the nature and extent of riparian resources that may have been excluded from analysis.

3. Concerning the condition of the riparian streams in the DEIS, page 3-13 states: "Statewide, 38 stream segments are in proper functioning condition, 116 segments are functional at risk, 38 segments are not functional, and 52 have not been inventoried. Of the total areas, 160 segments are grazed and 84 segments are excluded from grazing. Of the grazed areas, 14 are in proper functioning condition, 85 are functional at risk, 31 are not functional, and 30 have not been inventoried." Page 3-18 discusses non-point source (NPS) surface water pollution (NMWQCC 1998), stating that grazing on rangelands accounts for 29.5% of the total NPS contribution to surface water quality impairment in the state. The DEIS further states that "...grazing is a probable major source of pollutants which may contribute to water quality impairments on approximately 2,474 stream miles, and a minor source of pollutants which may contribute to water quality impairment on approximately 676 stream miles. Undoubtedly, many of the 448 miles of perennial streams on public lands have been impacted by grazing in the past. Of the 163 water-quality limited stream reaches identified by NMED (1998), approx. 46 have public lands within their watershed. Forty-two of these (91%) have grazing identified as one of the probable sources of pollutants."

4. The Department is concerned about riparian, aquatic and wetland habitats because they are essential for the survival of a majority of the species of wildlife found in the state. The quality (NMWQCC 1992) and quantity (Dahl 1990; Hink and Ohmart 1984) of these habitats have been significantly diminished or degraded. Of the 867 species of vertebrates known to occur in New Mexico, 479 (55%) rely wholly or in part on aquatic, wetland or riparian habitat for their survival. Fifty-one of the 96 species that are listed by the state as threatened or endangered are associated with these habitats (NMGF 1997).

5. All three action alternatives are designed to improve uplands and riparian areas that have been adversely affected by a combination of factors such as climate, fire suppression and grazing that have altered natural disturbance regimes, riparian function, and vegetative and wildlife composition, structure and diversity. Page ix states: "Of the 2,193 grazing allotments, it is projected that between 287 to 480 allotments (a relatively small percentage) would not meet the standards, depending on the alternative....In the short term, some allotments would increase livestock numbers while others may be adjusted downward....In the long term, livestock use is expected to increase as the rangelands improve in health and the forage production increases." The discussion describing impacts on wildlife from implementing the RAC alternative states on page 4-20: "Livestock would be used as a management tool to help restore and maintain sustainable habitats, increase biological diversity and vegetative productivity, and promote proper functioning uplands and riparian areas."

6. The DEIS does not explain how intensified grazing regimes will be used to achieve and maintain standards. The DEIS contains repetitious statements in the Grazing Administration sections for each alternative that do not clearly define differences between anticipated future management practices for increased livestock numbers and previous practices, and between alternative implementation. Since grazing has been a

contributing factor to not meeting the existing standards on some allotments, a discussion should be provided describing how future management practices that increase livestock numbers will: 1) differ from previous management practices that were insufficient to maintain upland and riparian health; 2) achieve the adopted standards and the goals of increasing biological diversity, vegetative productivity and proper functioning conditions of upland and riparian areas; 3) avoid contributing to or returning to the conditions that require the implementation of new standards and guidelines; 4) maintain the new standards for rangeland and riparian health once they have been achieved; and 5) differ between alternatives.

7. Page 4-46 of the DEIS states: "Under this alternative [Fallback] 480 permittees could be affected [the most of any alternative]. Permittees most affected by the guidelines would be those with small one-pasture allotments where there is continuous, season-long grazing. Continuous, season-long grazing is allowed to occur only when it has been demonstrated to be consistent with achieving a healthy, properly functioning ecosystem." This statement is inherently contradictory. According to the DEIS, implementation of the Fallback alternative would be the most restrictive and affect the most permittees, the majority of which practice season-long grazing. However, the DEIS maintains that season-long grazing is only allowed to occur if demonstrated to be consistent with achieving a healthy, properly functioning ecosystem. The standards and guidelines themselves are intended to improve rangeland and riparian conditions to achieve a properly functioning condition. Thus, it is unclear how the majority of allotments potentially affected by Fallback guideline implementation could have been achieving a healthy, properly functioning ecosystem.

8. The Cumulative Effects discussion addresses primarily the potential short-term effects of implementing the Proposed Action or other alternatives on the livestock industry, but does not factor in the cumulative benefits of improved surface water quality and groundwater recharge, soil retention and stability, decreased soil erosion and surface water runoff, more productive wildlife habitats, and increased hunter and non-consumptive wildlife user satisfaction.

9. The DEIS does not recognize the importance of vegetative communities as forage for wildlife. No discussion of formulas for determining AUM allocations for wildlife was included in the DEIS. Please provide a discussion in the wildlife sections of each alternative explaining how AUM's for wildlife will be determined, and how these formulas would differ for each alternative.

10. In the 1990 Memorandum of Understanding between the Department and the BLM, the BLM has agreed to "Appropriately recognize and give full consideration to wildlife as a desirable and co-equal resource on public lands under the multiple resource management concept." The Department is concerned that none of the standards and guidelines in the proposed alternatives sufficiently recognize the importance of standing residual vegetation and litter as cover for wildlife. Grassland bird species require residual vegetation for nesting cover, and many of these species are declining. Breeding Bird Survey data indicate that grassland bird populations are

experiencing the greatest population declines of any other avian group in North America (Robbins et al. 1993, Knopf 1994), probably attributable to habitat modifications from grazing and other human activities (Martin and Finch 1995). The lesser prairie chicken (*Tympanuchus pallidicinctus*) usually nests within sand sage-grassland or shinnery oak, and appears to require residual clumps of tall grasses for successful nesting (Davis 1979, Riley et al. 1992). The lesser prairie chicken has recently been determined by the U.S. Fish and Wildlife Service to be Warranted But Precluded for federal listing under the Endangered Species Act. Mule deer (*Odocoileus hemionus*), a priority management species for the Department, needs adequate residual vegetative cover for fawn survival. High predation rates and low fawn survival may be attributable in some areas to loss of cover from grazing (Green Hammond 1996). When selecting a final alternative to implement, the BLM should consider its commitment to recognize wildlife as a coequal resource, and the importance of residual vegetative biomass as wildlife cover and forage.

RECOMMENDATIONS

The Department recommends implementation of the Fallback standards and guidelines for the following reasons:

1. As stated on page 4-46, this alternative would focus management activities on more acres for wildlife habitat protection than the other alternatives.
2. The greatest number of riparian segments would be improved and restored to Proper Functioning Condition (PFC). Of 154 riparian segments classified as nonfunctional or functional-at-risk with a downward trend, or where the trend is not apparent, 107 riparian segments would be improved, 39 to PFC. The RAC alternative would improve 68 riparian segments, restoring 32 to PFC. The County alternative does not state the total number of riparian segments improved, but would also restore 32 segments to PFC.
3. Riparian segments would be improved and restored in the least amount of time.
4. The Fallback alternative allows for a slight increase in actual AUM's over the long-term, but considers and protects critical wildlife resources. The RAC alternative also protects critical wildlife resources, the County alternative does not.
5. The Fallback alternative incorporates landscape-level, as well as site-specific (allotment level) habitat needs when developing Allotment Management Plans (AMP's). The RAC alternative also considers landscape-level habitat needs; the County alternative does not.
6. Soil conditions will undergo the greatest improvement under the Fallback alternative. The RAC alternative provides for better soil conditions than the No Action or County alternatives, from the implementation of grazing guidelines on more acres. The County alternative will provide for slightly more improvement to soils than the No Action alternative.
7. Although not clearly defined in the analysis for water and upland vegetation, the Fallback alternative will most successfully improve surface water quality by reducing non-point source pollution, increasing water retention and associated aquifer recharge, and reducing surface erosion and stream sedimentation, which will improve habitat quality and quantity for aquatic life.

8. Although not stated or adequately analyzed in the Big Game section of each alternative, based on enhanced conditions of other resources such as riparian and upland habitats, the Fallback alternative will provide the best long-term opportunities for increasing deer herds, a primary management goal of the Department.

Finally, the Department recognizes that grazing can have numerous and complex effects on soil, water, vegetation and wildlife resources. The DEIS refers to conducting future extensive and widespread brush control and herbicide projects in shinnery oak, mesquite, juniper and big sage communities. Between 1989 and 1992, BLM conducted an average of over 20,000 acres of brush control a year. These activities can have profound effects on wildlife populations with specialized habitat requirements. To assist the BLM in addressing these concerns, we have included several lists of Threatened, Endangered and Sensitive species potentially adversely impacted by grazing and range improvement practices such as brush control on juniper, big sage, mesquite and shinnery oak. The Department would like to continue to work closely with the BLM on AMP's that could impact wildlife resources.

We appreciate the opportunity to comment on this DEIS. Should you have any questions, please contact Mark Watson, Habitat Specialist, of my staff at 827-1210.

Sincerely,

Jerry A. Maracchini, Director

JAM/MLW

Encl.

Xc (w/o encl.)
Governor Gary Johnson
Lieutenant Governor Walter Bradley
Frank Dubois (Secretary, Dept of Agriculture)
Field Supervisor (Ecological Services, USFWS)
Jim Davis (Chief, SWQB, NMED)
Game and Fish Commissioners
Jerry Maracchini (Director, NMGF)
Scott Brown (Assistant Director, NMGF)
Area Operation Chiefs
Amy Fisher (Conservation Services Assistant Division Chief, NMGF)
Mark Watson (Conservation Services Habitat Specialist)

Literature Cited

Dahl, T.E. 1990. Wetlands losses in the United States, 1780's to 1980's. U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C. 21pp.

Davis, C.A., T.Z. Riley, R.A. Smith, H.R. Suminski and D.M. Wisdom. 1979. Habitat evaluation of lesser prairie chickens in eastern Chaves County, New Mexico. New Mexico Agr. Expt. Sta., Las Cruces, NM 141pp.

Fleischner, T.L. 1994. Ecological Costs of Livestock Grazing in Western North America. Con. Bio. 8:629-644.

Green Hammond, K.A. 1996. New Mexico Department of Game and Fish, Deer Model Users Manual, December 1992 Version with March 1996 Revisions. New Mexico Department of Game and Fish, Santa Fe. 161pp.

Hink, V.C. and R.D. Ohmart. 1984. Middle Rio Grande biological survey. Report submitted to the U.S. Army Corps of Engineers, Albuquerque, New Mexico. Contact Number DACW47-81-C-0015. 58pp.

Knopf, F.L. 1994. Avian assemblages on altered grasslands. Stud. Avian Bio. No. 15:247-257.

Martin, T.E., and D.M. Finch. 1995. Ecology and Management of Neotropical Migratory Birds. A Synthesis and Review of Critical Issues. Oxford University Press. New York. p. 320.

New Mexico Department of Game and Fish. 1997. The importance of aquatic, wetland and riparian habitats for wildlife in New Mexico. New Mexico Department of Game and Fish, Santa Fe, New Mexico. January 1997. 1p.

New Mexico Environment Department. 1998. 1998-2000 State of New Mexico §303(d) List for Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDL's). Final Record of Decision (ROD) for River/Stream Listings. July 1998. Santa Fe: New Mexico Environment Department.

New Mexico Water Quality Control Commission. 1992. Water quality and water pollution control in New Mexico, 1992. A report prepared for submission to the Congress of the United States by the State of new Mexico pursuant to Section 305(b) of the Federal Clean Water Act. NMED/SWQ-92/1. New Mexico Environment Department, Santa Fe, New Mexico. 263pp.

New Mexico Water Quality Control Commission. 1998. New Mexico Nonpoint Source Management Program, 1996. Santa Fe, NM.

Riley, T.Z., C.A. Davis, M. Ortiz and M.J. Wisdom. 1992. Vegetative characteristics of successful and unsuccessful nests of lesser prairie chickens. J. Wildl. Manage. 56:383-387.

Robbins, C.S., J.R. Sauer, and B.G. Peterjohn. 1993. Population trends and management opportunities for Neotropical migrants. Pp.17-23 *in* Status and management of migratory Neotropical birds (D.M. Finch and P.W. Stangel, eds). USDA Forest Serv. Gen. Tech. Rep. RM-229.

Taxa which are Endangered, Threatened, Proposed, Candidate, Sensitive and/or Species of Concern in Great Basin sagebrush

Common Name	SCIENTIFIC NAME	FWS.. ESA	FWS. SOC	FS. R3	BLM.. NM	STATE NM	STATE AZ
N. Sagebrush Lizard	Sceloporus graciosus graciosus	-	S	-	-	-	-
Swainson's Hawk	Buteo swainsoni	-	-	S	-	-	S
Ferruginous Hawk	Buteo regalis	-	S	S	S	-	S
Burrowing Owl	Athene cunicularia hypugaea	-	S	-	S	-	-
Loggerhead Shrike	Lanius ludovicianus	-	S	-	S	-	-
Black-billed Magpie	Pica pica hudsonia	-	-	-	-	-	S
White-tailed Jack Rabbit	Lepus townsendii campanius	-	-	-	-	S	-
Gunnison's Prairie Dog	Cynomys gunnisoni	-	-	-	-	S	-
NM Banner-tailed Kangaroo Rat	Dipodomys spectabilis baileyi	-	-	-	-	-	S
Red Fox	Vulpes vulpes	-	-	-	-	S	-

Taxa which are Endangered, Threatened, Proposed, Candidate, Sensitive and/or Species of Concern in Shinnery Oak

Common Name	SCIENTIFIC NAME	FWS.. ESA	FWS. SOC	FS. R3	BLM.. NM	STATE NM	STATE AZ
Texas Horned Lizard	Phrynosoma cornutum	-	S	S	S	-	-
Sand Dune Lizard	Sceloporus arenicolus	-	S	-	S	T	-
Desert Kingsnake	Lampropeltis getula splendida	-	-	S	-	-	-
Texas Longnose Snake	Rhinocheilus lecontei	-	-	S	-	-	-
Desert Massasauga	Sistrurus catenatus edwardsii	-	-	S	-	-	S
Swainson's Hawk	Buteo swainsoni	-	-	S	-	-	S
Ferruginous Hawk	Buteo regalis	-	S	S	S	-	S
Lesser Prairie-chicken	Tympanuchus pallidicinctus	-	-	-	S	S	-
Sandhill White-tailed Deer	Odocoileus virginianus texana	-	-	-	-	S	-

Taxa which are Endangered, Threatened, Proposed, Candidate, Sensitive and/or Species of Concern in Chihuahua Desert; mesquite/tarbush/ocotillo

Common Name	SCIENTIFIC NAME	FWS.. ESA	FWS. SOC	FS. R3	BLM.. NM	STATE NM	STATE AZ
Great Plains Narrowmouth Toad	Gastrophryne olivacea	-	-	S	-	E	S
Texas Horned Lizard	Phrynosoma cornutum	-	S	S	S	-	-
Giant Spotted Whiptail	Cnemidophorus burti	-	S	S	S	T	-
Gray-checkered Whiptail	Cnemidophorus dixoni	-	S	-	S	E	-
Reticulate Gila Monster	Heloderma suspectum suspectum	-	-	S	-	E	-
Gray-banded Kingsnake	Lampropeltis alterna	-	-	-	-	S	-
Desert Kingsnake	Lampropeltis getula splendida	-	-	S	-	-	-
Texas Longnose Snake	Rhinocheilus lecontei	-	-	S	-	-	-
Desert Massasauga	Sistrurus catenatus edwardsii	-	-	S	-	-	S
Swainson's Hawk	Buteo swainsoni	-	-	S	-	-	S
Zone-tailed Hawk	Buteo albonotatus	-	-	S	-	-	-
Ferruginous Hawk	Buteo regalis	-	S	S	S	-	S
Burrowing Owl	Athene cunicularia hypugaea	-	S	-	S	-	-
Loggerhead Shrike	Lanius ludovicianus	-	S	-	S	-	-
Yellow-eyed Junco	Junco phaeonotus palliatus	-	-	S	-	T	-
Varied Bunting	Passerina versicolor	-	-	S	-	T	-
Nelson's Pocket Mouse	Chaetodipus nelsoni canescens	-	-	-	-	S	-

Taxa which are Endangered, Threatened, Proposed, Candidate, Sensitive and/or Species of Concern in Juniper

Common Name	SCIENTIFIC NAME	FWS.. ESA	FWS. SOC	FS. R3	BLM.. NM	STATE NM	STATE AZ
Arizona Toad	Bufo microscaphus microscaphus	-	S	S	S	S	-
N. Sagebrush Lizard	Sceloporus graciosus graciosus	-	S	-	-	-	-
Giant Spotted Whiptail	Cnemidophorus burti	-	S	S	S	T	-
Gray-checkered Whiptail	Cnemidophorus dixoni	-	S	-	S	E	-
Mountain Skink	Eumeces tetragrammus callicephalus	-	-	S	-	T	-
Desert Kingsnake	Lampropeltis getula splendida	-	-	S	-	-	-
Texas Longnose Snake	Rhinocheilus lecontei	-	-	S	-	-	-
Green Rat Snake	Senticolis triaspis intermedia	-	-	S	-	T	-
Yaqui Blackhead Snake	Tantilla yaquia	-	-	-	-	S	-
Mottled Rock Rattlesnake	Crotalus lepidus lepidus	-	-	S	-	T	-
Desert Massasauga	Sistrurus catenatus edwardsii	-	-	S	-	-	S
Swainson's Hawk	Buteo swainsoni	-	-	S	-	-	S
Zone-tailed Hawk	Buteo albonotatus	-	-	S	-	-	-
Ferruginous Hawk	Buteo regalis	-	S	S	S	-	S
American Peregrine Falcon	Falco peregrinus anatum	E	-	S	-	T	S
Arctic Peregrine Falcon	Falco peregrinus tundrius	A	-	S	-	T	S
Burrowing Owl	Athene cunicularia hypugaea	-	S	-	S	-	-
Mexican Spotted Owl	Strix occidentalis lucida	T	-	S	-	S	S
Loggerhead Shrike	Lanius ludovicianus	-	S	-	S	-	-
Gray Vireo	Vireo vicinior	-	-	S	-	T	-
Mexican Chickadee	Poecile sclateri eidos	-	-	S	-	-	-
Yellow-eyed Junco	Junco phaeonotus palliatus	-	-	S	-	T	-
McCown's Longspur	Calcarius mccownii	-	-	S	-	-	-
Long-legged Myotis Bat	Myotis volans interior	-	S	-	S	S	-
Penasco Least Chipmunk	Tamias minimus atristriatus	-	-	S	-	E	-
Organ Mtns. Colorado Chipmunk	Tamias quadrivittatus australis	-	S	-	S	T	-
Oscura Mtns. Colorado Chipmunk	Tamias quadrivittatus oscuraensis	-	S	-	S	T	-
Gray-footed Chipmunk	Tamias canipes canipes	-	S	-	S	-	-
Gunnison's Prairie Dog	Cynomys gunnisoni	-	-	-	-	S	-
Guadalupe Pocket Gopher	Thomomys bottae guadalupensis	-	S	S	S	S	-
Southern Pocket Gopher	Thomomys umbrinus emotus	-	-	-	-	T	-
Navajo Mogollon Vole	Microtus mogollonensis navaho	-	S	-	-	-	S
Red Fox	Vulpes vulpes	-	-	-	-	S	-

Taxa which are Endangered, Threatened, Proposed, Candidate, Sensitive and/or Species of Concern: Potential trampling/cover impacts.

Common Name	SCIENTIFIC NAME	FWS.. ESA	FWS. SOC	FS. R3	BLM.. NM	STATE NM	STATE AZ
Texas Horned Lizard	Phrynosoma cornutum	-	s	s	s	-	-
Sand Dune Lizard	Sceloporus arenicolus	-	s	-	s	T	-
Mountain Skink	Eumeces tetragrammus callicephalus	-	-	s	-	T	-
American Bittern	Botaurus lentiginosus	-	-	s	-	-	s
Green Heron	Butorides virescens	-	-	s	-	-	-
Lesser Prairie-chicken	Tympanuchus pallidicinctus	-	-	-	s	s	-
Gould's Wild Turkey	Meleagris gallopavo mexicana	-	-	s	-	T	-
Sora	Porzana carolina	-	-	s	-	-	-
Piping Plover	Charadrius melodus circumcinctus	T	-	-	-	E	-
Mountain Plover	Charadrius montanus	P	-	s	-	s	-
Black-necked Stilt	Himantopus mexicanus	-	-	s	-	-	-
Upland Sandpiper	Bartramia longicauda	-	-	s	-	-	-
Interior Least Tern	Sterna antillarum athalassos	E	-	s	-	E	-
Buff-collared Nightjar	Caprimulgus ridgwayi ridgwayi	-	-	s	-	E	-
Broad-billed Hummingbird	Cynanthus latirostris magicus	-	-	s	-	T	-
Veery	Catharus fuscescens salicicola	-	-	-	-	-	s
Sprague's Pipit	Anthus spragueii	-	-	s	-	-	s
Baird's Sparrow	Ammodramus bairdii	-	s	s	s	T	s
AZ Grasshopper Sparrow	Ammodramus savannarum ammolegus	-	-	-	-	T	s
Yellow-eyed Junco	Junco phaeonotus palliatus	-	-	s	-	T	-
McCown's Longspur	Calcarius mccownii	-	-	s	-	-	-
Bobolink	Dolichonyx oryzivorus	-	-	-	-	-	s
White-sided Jack Rabbit	Lepus callotis gaillardi	-	s	s	s	T	-
Yellow-nosed Cotton Rat	Sigmodon ochrognathus	-	s	-	s	-	-
Heather Vole	Phenacomys intermedius intermedius	-	-	-	-	s	-
Arizona Montane Vole	Microtus montanus arizonensis	-	-	s	-	E	-
Prairie Vole	Microtus ochrogaster haydenii	-	-	-	-	s	-
New Mexican Jumping Mouse	Zapus hudsonius luteus	-	s	s	s	T	s
Sandhill White-tailed Deer	Odocoileus virginianus texana	-	-	-	-	s	-
Chihuahuan Pronghorn	Antilocapra americana mexicana	-	-	s	-	-	s

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LILLIE LANEY
PROBATE JUDGE

STATE OF NEW MEXICO

CATRON COUNTY

RESERVE, NEW MEXICO 87830

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May 14, 1999

RECEIVED
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99 MAY 18 AM 10:25
STATE OFFICE
SANTA FE, NEW MEXICO

John W. Whitney,
Bureau Of Land Management
P.O. Box 27115
Santa Fe, NM 87502-0115

Dear Mr. Whitney,

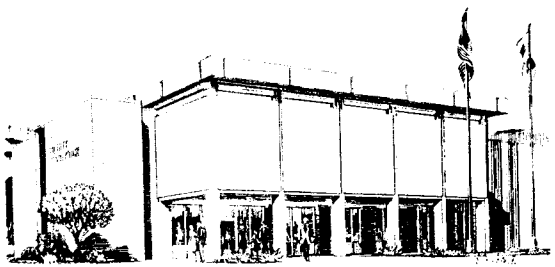
As you are aware, the State/BLM ID Team is in the midst of the NEPA comment period for considering the various alternatives for Healthy Public Lands Standards and Guidelines. Once the public comment period is over the joint State/BLM ID Team in consultation with the State of New Mexico and Cooperating Counties, will examine the comments to complete the Environmental Impact Statement (EIS). At this point in time it is important to identify concerns over the Draft EIS (DEIS) because it fails to adequately address the potential significant impacts on the people of New Mexico and because the joint planning process and agreements have been breached by the BLM.

In reviewing the DEIS document, the County has identified several problems in content as well as problems with our agreed upon scope of environmental impact analyses, especially pertaining to the human dimension aspect. The County comments follow the Council on Environmental Quality guidelines(CEQ 1503.3(a)) that state:

Comments...should be as specific as possible and may address the adequacy of the statement [DEIS] or the merits of the alternatives discussed or both.

The County's concerns center around the failure of the BLM adequately to address problems identified by the State ID Team. CEQ states that:

If the lead agency leaves out a significant issues...the EIS may be found later to be inadequate.(CEQ Forty Most Asked Questions (henceforth referred to as FMAQ) #14b).



Background
The State ID Team agreed with the BLM to document the existing environment for the economic, social, cultural, and equity areas for baseline information in Chapter 3. Also to analyze economic, social, cultural, and equity impacts for each alternative in Chapter 4. Furthermore, the State ID team was asked to coordinate the development, analyze and document the Human Dimension component per agreement in Alamagordo (agreed upon official meeting minutes, 11/97). It is apparent that the current DEIS does not reflect

these agreements, nor does it comply with NEPA/CEQ regulations in content or process for a joint EIS analyses, documentation or joint public involvement process (CEQ 1506.2, the State/BLM MOU or Cooperating County mini NEPA ordinances). BLM is negligent in these areas and in their competence and scientific accuracy. Moreover, the BLM has constantly flip flopped on their data bases, positions, interpretations of NEPA requirements, and in demonstrating a disregard for the laws and regulations of the State and Counties of New Mexico.

Listed below are the major problems with the current DEIS content and planning processes pursuant to federal, state and/or county laws. The three major areas of concern with the current DEIS are:

A. Inadequacy and inaccuracy of the DEIS;
B. Errors in DEIS content, and,
C. BLM/State/County process & the rejection of the State impact analysis and documentation.

A. Inadequacy and Inaccuracy of the DEIS

1. Throughout the DEIS document the BLM makes erroneous claims that the RAC alternative is the better alternative for the public land rancher "in the long run". This is false due to their erroneous assumption that the historical BLM adjudicated preference grazing AUMs (Animal Unit Months) would be used as long range target numbers (goals). The recent 10 Circuit Court of Appeals overturned the adjudicated preference policy. Hence, BLM has rejected the policy of adjudicated preference numbers, invalidating the impact analyses. Also, the analysis does not include the impacts of those permits that do meet the standards and will move towards adjudicated preference within the analyzed time frame. In short, this problem invalidates BLM's conclusion that the RAC is the best alternative for the rancher and for New Mexico. The DEIS is an inadequate impact analysis, failing to accurately display the full significant effects of the Fallback, RAC and County alternatives.

2. The BLM information problems include database inaccuracies, methodologies, delays and a general lack of clarity, understanding and readability of the DEIS. In

addition, meetings between the State ID Team and BLM illustrate chronic problems with BLM delays as well as inconsistencies and inaccuracies with the BLM's information, analysis and persistent misinterpretations. This is reinforced by the Customs and Cultures of the County in an appendix instead of the main body of the DEIS.

3. The DEIS is difficult to follow in part due to their convoluted formatting and manipulation of both State analyses as well as Cooperating County inputs. CEQ requires that an EIS document be clear and understandable to the general public. The Department of Interior *NEPA Handbook (*Chapter 44.19) states:

BLM EIS Con't

If the EIS is combined with another decisionmaking document [e.g., Cooperating County EIRs] *[the EIS] will be clearly and separately identified and not interwoven into other portions of or spread throughout the [EIS] document.*

As it now stands the DEIS does not meet this requirement. It is impossible to understand what the real impacts are, much less sort out these distinctions cited above.

B. Errors in the BLM DEIS Content:

1. The BLM failed to identify and fulfill their statutory and regulatory requirements by not including adequate and detailed socioeconomic, cultural or distributional effects analyses. More particularly, the BLM did not analyze the effects on equity (e.g., distributional effects) or federal rights regulations, including requirements to conduct Takings Implication Assessment (Presidential Executive Order 12630) or impacts on civil rights (18 U.S.C. 241 & 245(a)(1), 1964 Civil Rights Act Title VII). The BLM persisted in ignoring their responsibilities under Presidential Order 12898, Environmental Justice and Environmental Justice NEPA Guide (designed specifically for addressing the effects on protected classes of citizens). In addition, the BLM disregarded requirements to assess regulatory impacts (Presidential Order 12291); the Regulatory Flexibility Analysis (5 U.S.C. 603 & 604); and, the requirements under the Presidential Executive Order 13045 Protection of Children from Environmental Health Risks and Safety Risks.

Furthermore, the BLM was presented with documentation from their own manuals and guidelines for conducting socioeconomic analyses, for considering Human Dimension, and distributional effects, civil rights and Environmental Justice, mitigation guidelines *BLM Guide to Social Assessment, Reference Guide to Socioeconomic Mitigation and Human Dimension Internal Policy.* Yet BLM disregarded these cites by leaving out important components in the Effects/Impact Analyses.

2. The BLM also failed to analyze indirect and cumulative social, cultural and economic effects of each alternative as well as failed to address irreversible and irretrievable impacts (CEQ 1508.7, 1508.8(b) and 1508.27). The *BLM NEPA Handbook* (Chapter V #2) CEQ states:

The EIS must identify all the indirect effects that are known and make good faith effort to explain the effects that are not known but are "reasonably foreseeable." (FMAQ#18).

The DEIS is void of analysis of the indirect and cumulative effects analysis for each of the alternatives. This is exemplified in their removal of key phrases in chapter three analyses of the urban impacts on healthy rangelands. This information was included in the County's EIR. BLM went out of its way to play down the *relative* effects of urbanization by stating that these lands occupy less than 3% of the total BLM lands. While this low percentage should be questioned, the point is not the percentage of land

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impacted, rather the degree and cumulative impacts. Academic research and BLM field reports show that urban impacts have the potential for irreversible and irretrievable impacts on healthy public rangelands. The BLM surgically removed any reference to this potential for indirect, cumulative and irreversible and irretrievable effects discussed in the County's EIR. By removing this analysis and language it eliminates the point that this is disproportionate harm to the ranchers. Without being able to show that other public land users are contributing to adverse effects to healthy public lands, it conceals the fact that the public land rancher is being singled out to bare the brunt of the costs.

3. The BLM failed to consider the Human Dimension effects on all the regions of the State of New Mexico (southwest, southeast, or the northwest). By opting to only consider one region (Central Mts.), the DEIS does not adequately show the significant demographic and geographic regional differences (a key component to managing for these different ecosystems). Moreover, by disregarding these significant differences, the report displays a lack of sensitivity not only the different ecosystems, but to the ethnic and cultural differences. Most notably, the document does not address the Native Americans, especially the Navajos in the northwest who have a significant number of BLM grazing permits. In order to analyze and document statewide effects, it is necessary to address each region within the State to obtain a statewide aggregate. The other three regions should be incorporated before the final EIS is completed for statewide analysis.

4. In addition, the DEIS did not adequately analyze the effects of the No Action alternative in their report. The DEIS only *lists* the present condition. It is essential to analyze the No Action alternative to provide a baseline *for comparative evaluation* - to show the effects of *relative* changes for each alternative *from* the baseline (even if the baseline will not be implemented).

5. The above analyses are designed to determine if there are significant adverse effects from each alternative in order to consider mitigation measures *to show ways to reduce or eliminate* harm to the Human Environment (CEQ 1508.14, 1502.14(f), 1502.16(h) and 1505.2c). BLM did not develop mitigation measures for addressing and alleviating significant negative effects, even after the State ID Team requested measures be identified to provide guidelines for implementation of Standards and Guidelines and

after the State/Counties requested to participate in mitigation planning. Hence, the BLM removed the *only* opportunity to reduce or eliminate significant adverse effects and provide for a balance between socioeconomic and biophysical impacts (NEPA 102).

6. BLM did not conduct the Consistency Analysis requirements in DEIS per Federal Land Planning and Management Act (43 CFR 1610.3). This law requires the BLM to analyze and identify consistencies and inconsistencies with State environmental and natural resources Laws and County environmental and natural resources Ordinances. The Counties refused to do this requirement, and therefore the BLM simply left this

BLM EIS Con't

requirement out. The implications to such inaction is that the State/BLM ID Team never was afforded the opportunity to develop a combined document that would show how the healthy rangeland alternatives relate to federal, state, and local laws. This should have been done early in the process to avoid many of the problems that subsequently arose. This consistency review also is an important foundation for moving from the healthy rangelands Standards and Guidelines to actual Area Resource Plan implementation. Without it, the future Area Resource Plans will be missing critical intergovernmental coordination to manage for public lands.

CEQ FMAQ#22 states:
...certain inconsistencies may exist between the proposed federal action and any approved state or local plan or law. The joint document should discuss the extent to which the federal agency would reconcile its proposed action with such plan or law (CEQ 1506.2)

Instead of compliance, the BLM unilaterally decided to reject State and County analyses without attempting to reconcile the inconsistencies.

7. The DEIS refused to include County Environmental Ordinances for assessing social, cultural and economic impacts, as well as County requirements to assess federal proposed actions on civil rights and property rights. The BLM disregarded the County Ordinances that *require* consideration of the impacts on property rights and civil rights.

CEQ 1506.2 states:
Agencies shall cooperate with State and local agencies to the fullest extent possible to reduce duplication between NEPA and State and local requirements...Where State laws or local ordinances have environmental impact requirements...federal agencies shall cooperate in fulfilling these requirements as well as those of federal laws so that one document will comply with all applicable laws.

Cooperating County environmental ordinances provide the vehicle in which county environmental impact reports are to be included in federal EISs. Yet, the BLM's response is 28 pages of rationalizations as to why they, as a federal agency, are exempt from their

own federal statutory compliance requirements. The BLM never did give a logical or legal argument why BLM denied the counties from exercising *their* right in joint EISs per CEQ1506.2. Federal, State and County laws and regulations were discussed in detail in the County EIR. The BLM suggested to the State Team to place this discussion in the Appendix; the BLM subsequently and unilaterally removed it from the DEIS.

Related to the above, it is inadequate (and odd) that the DEIS is void of any mention of the joint planning process, adding to the confusion of the reader. It should explain the

BLM EIS Con't

exact nature of this joint effort as well as reasons why it is necessary for State and County participation.

C. BLM/State/County Process & The Rejection Of The County Impact Analysis And Documentation.

1. BLM refused to include the State Team's social, cultural and equity (distributional effects) analyses, otherwise referred to as the Human Dimension Analysis per State/County/BLM agreement. While the BLM seemingly recognized the differences in analyses and documentation, the BLM disregarded CEQ requirements for both resolving differences and for dealing with differences by removing the State Team's Human Dimension impact analyses and documentation. Again, CEQ states:

If the lead agency leaves out a significant issue or ignores the advise and expertise of the cooperating agency, the EIS may be found later to be inadequate. Similarly, where the cooperating agencies have their own decisions to make and they intend to adopt the environmental impact statement and base their decisions on it, one document should include all of the information necessary for the decisions by the cooperating agencies. Otherwise they may be forced to duplicate the EIS process by issuing a new, more complete EIS or Supplemental EIS, even though the original EIS could have sufficed if it had been properly done at the outset. Thus both lead and cooperating agencies have a stake in producing a document of good quality. ... (CEQ FMAQ #14b).

Cooperating Counties plan to base their (County) decision on the one document, that is, the BLM DEIS. Given the problems with the DEIS, Cooperating Counties have been forced to duplicate the DEIS and redo the entire process, analysis and documentation.

CEQ recognizes differences and provides instructions for dealing with this. More importantly it is clear that CEQ still requires that "complete" state and county analyses be included in the document:

Because of the differences in perspectives as well as conflicts among federal, state and local goals...the Council has advised participating agencies to adopt a flexible, cooperative approach. The joint EIS should reflect all of their interests and missions, clearly identified as such. The final document would then indicate how state and local

interests have been accommodated or would identify conflicts in goals... The EIS must contain a complete discussion of the scope and purpose of the proposal, alternatives, and impacts so that the discussion is adequate to meet the needs of local, state and federal decisionmakers. (FMAQ#22)

It was clear in the agreement with the BLM that the State Team in consultation with Cooperating Counties, would analyze and document the economic, social, cultural and equity analyses for both chapters three and four of the DEIS. It is also clear that BLM

BLM EIS Con't

action denied the State and the Counties the right to full disclosure of the impacts defined by the State and Counties in one document. The BLM chose to disregard their own legal requirements, and in this process disregard State and County laws to protect the health, safety and welfare of their citizens.

2. In addition, the BLM did not include the State or Cooperating Counties in the on-going public involvement process as a joint process per MOU agreement, CEQ 1506.2 and County Environmental Ordinances (as well as requests by the State and Cooperating Counties). In addition, the BLM has failed to adequately incorporate the affected tribes and pueblos of New Mexico in the analyses and documentation processes. Presently, the tribes and pueblos have no idea or way of knowing the potential adverse effects on their jurisdictions much less on their communities or individual permittees.

3. Finally, the BLM did not afford the opportunity to the State Team in writing and distribution of the DEIS per State/County/BLM MOUs. Instead, the BLM reversed this agreement and unilaterally wrote the DEIS over protest from the State Team and Cooperating Counties.

Conclusion and Recommendation:

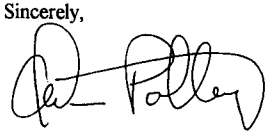
These problems are identified early during the comment period for consideration by the State Team and the Cooperating Counties of New Mexico. The DEIS should either be redone or a Supplemental EIS be conducted. this is necessary because the DEIS is inaccurate in comparing the alternatives as well as drastically under-estimating the significant adverse effect on the Human Environment.

The County hopes this critique can be helpful in resolving the problems that now exist. It would be a real disservice to New Mexico, Counties and the general public to continue as is (not to mention the increased exposure to litigation and financial risks). Furthermore, it would be a tragic waste of human and financial resources. The State and County Teams have spent half a million dollars on this Joint EIS process, excluding the BLM waste.

In the end, to pursue with the current DEIS and Preferred Alternative, will only contribute to politically motivated interest groups using public land ranchers as scapegoats.

Moreover, it will have adverse effects on rural dependent communities, our natural resources and on a major sector of New Mexico's economy -drastically impacting agriculture -without a complete and accurate analysis and full disclosure document.

Sincerely,



Adam Polley
Catron County Manager

New Mexico Association of Conservation Districts

(505) 981-2400
Home Ph/Fax (505) 981-2422

163 Trail Canyon Road
Carlsbad, New Mexico 88220

May 10, 1999

Bureau of Land Management (NM-931)
Mr. J.W. Whitney, BLM Project Leader
P.O. Box 27115
Santa Fe, NM 87502

Dear Mr. Whitney:

On behalf of the New Mexico Association of Conservation Districts, I would like to submit these comments concerning the draft Environmental Impact Statement (DEIS). I am concerned that this document does not comply with the NEPA process. The DEIS fails to analyze the indirect and cumulative social, cultural, and economic effects and the irreversible impacts of each alternative.

The Federal Land Policy and Management Act requires BLM to identify and analyze consistencies and inconsistencies with State and local plans. Each of the Soil and Water Conservation Districts in New Mexico has annual and long-range plans. These plans have not been considered. Individual Soil and Water Conservation Districts have Memorandums of Understanding (MOU's) signed with BLM; these are not being utilized.

Soil and Water Conservation Districts are responsible for the conservation and development of the natural resources within their district boundaries. They are also responsible for protecting the human health and safety of the state of New Mexico. We encourage the Bureau of Land Management to coordinate and consult with the local Soil and Water Conservation District and to update the existing MOU's.

We would like to support the county alternative, so that the "human dimension" may be considered.

Sincerely,

Debbie Hughes

Debbie Hughes, Executive Director

Conservation Development Self-Government

COMMERCIAL RESOURCES (505)-827-5724
SURFACE RESOURCES (505)-827-5793
MINERAL RESOURCES (505)-827-5744
ROYALTY (505)-827-5772

State of New Mexico
Commissioner of Public Lands
Ray Powell, M.S., D.V.M.
310 Old Santa Fe Trail, P. O. Box 1148
Santa Fe, New Mexico 87504-1148
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May 24, 1999

Mr. John Whitney, BLM Project Leader
Bureau of Land Management (NM 931)
P.O. Box 27115
Santa Fe, New Mexico 87502-0115

Dear Mr. Whitney:

Thank you for providing the State Land Office with the opportunity to review the Draft Statewide Resource Management Plan Amendment/EIS for New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management. Based on our review we offer the following comments.

1. (page 1X) Of the alternatives presented we recommend the RAC alternative. This alternative provides a framework for focusing on rangeland health with a strong component for input from rangeland experts and the public. While such a degree of public involvement could influence or divert attention from needed management actions, this alternative also focuses on the human dimension of rangeland management.

2. (page 1-4) The BLM proposal to create an interagency team of rangeland specialists responsible for developing site indicators is of interest to the State Land Office, since we hold lands in BLM grazing allotments. Consequently, we would like to contribute a member to that interagency team and ask that we be notified of its formation.

3. (pages 2-2/2-4) Again, the RAC alternative is recommended because it contains more specific guidelines and has a strong emphasis on riparian/watershed management.

In summary, while all four alternatives have the potential to achieve the same goals, the human dimension as evaluated in both the RAC and County alternatives directly affects the BLM's ability to target specific problems with on-the-ground management activities. Thus, input and participation from experts and the public alike are important components to implementing management objectives associated with the RAC alternative. However, if undertaken, this alternative appears to have the greatest potential to improve rangeland health in New Mexico.

Again, thank you for providing the opportunity to comment. If you have any questions or would like any further information, please feel free to contact Robyn Tierney at 505/827-5751.

Sincerely,

ROBERT S. JENKS
ASSISTANT COMMISSIONER
SURFACE RESOURCES

RSJ/RT/dm

United States Department of the Interior

FISH AND WILDLIFE SERVICE
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Albuquerque, New Mexico 87113
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SANTA FE, NEW MEXICO

June 10, 1999

Cons. #2-22-99-I-282

Memorandum

To: State Director, New Mexico State Office, Bureau of Land Management, Santa Fe, New Mexico

From: Field Supervisor, New Mexico Ecological Services Field Office, U.S. Fish and Wildlife Service, Albuquerque, New Mexico

Subject: Draft Statewide Resource Management Plan Amendment/Environmental Impact Statement, New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management

The U.S. Fish and Wildlife Service (Service) has reviewed the *Draft Statewide Resource Management Plan Amendment/Environmental Impact Statement, New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* (DEIS) dated February 1999. The DEIS analyzes the impacts of adopting statewide standards for public land health and guidelines for grazing management on lands administered by the Bureau of Land Management (BLM) in New Mexico. Any standards and guidelines adopted would be incorporated into eight existing resource management plans (RMPs) covering the public lands in New Mexico. The proposed standards and guidelines were developed in partnership with a statewide Resource Advisory Council (RAC), and other public input.

The DEIS considers four alternatives. The first alternative (present management/no-action) is the continuation of the current management direction. The second alternative (proposed action/BLM preferred alternative) is to adopt the standards and guidelines developed by the RAC. The third alternative (County alternative) is to adopt standards and guidelines developed by the New Mexico/Arizona Coalition of Counties. The fourth alternative (Fallback alternative) is to implement the fallback standards and guidelines defined in the BLM's grazing regulations. If any of the action alternatives are adopted, changes would have to be made to the existing land use plans.

The Service commends the BLM for its efforts to consider actions to improve upland and riparian conditions. However, the DEIS does not adequately analyze or compare the alternatives. Section 1502.14(a-f) of the National Environmental Policy Act states that and Environmental Impact Statement should present the environmental impacts of

the proposal and alternatives in comparative form thus sharply defining the issues and providing a clear basis for choice among options. There are not qualitative or quantitative differences that can be distinguished across the range of alternatives for this proposed project. The Service recommends that Chapter 4 of the DEIS be edited and revised to clarify and describe the differences between alternatives and their impacts.

The DEIS does not explain how the BLM will use grazing management to achieve the standards that are proposed in the various alternatives. There are no apparent differences in management across the action alternatives.

The cumulative effects discussion does not adequately address the impacts of implementing the action alternatives on vegetative and soil conditions, water quality, and impacts to wildlife and specialized wildlife habitats. The focus of the analyses emphasizes the grazing industry and the associated economic impacts of adopting standards and guidelines. No single factor has been a greater cause of decline in wildlife populations than loss of habitat. To maintain viable populations of wildlife species, sufficient resources and adequate environmental conditions must provide for reproduction, foraging, resting, cover and dispersal of animals. These attributes of wildlife habitat are not adequately addressed in the document. It is impossible to make meaningful management decisions and adequately evaluate the overall cumulative affects of adopting the standards and guidelines without a picture of the habitat and wildlife that will be impacted.

The Service recommends the implementation of the Fallback Alternative. According to the DEIS, the standards and guidelines under the Fallback Alternative would focus management activities on the maximum amount of wildlife species and their habitats than the other alternatives. The most significant improvements to vegetative and soil conditions, water quality and key wildlife habitats occur under this alternative. Also, the largest amount of riparian habitat would be improved in the least amount of time under this alternative.

The Service appreciates the opportunity to review this DEIS. However, we did not receive the document from the Bureau of Land Management until April 26, 1999. Therefore, although we were unable to meet the deadline for comments of May 17, 1999, we request you consider our comments during the preparation of the final environmental impact statement.

Thank you for your concern for endangered species and New Mexico's wildlife habitats. If we can be of further assistance, please contact Delfinia Jaramillo of my staff at the letterhead address or at 505/346-2525.

Jennifer Fowler-Propst

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Field Supervisor, U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office, Phoenix, Arizona

Glossary

GLOSSARY

8100 Projects - range betterment projects funded by monies returned to the BLM based on a specific portion of the grazing fees.

Activity Plan - a site specific plan which precedes actual development or implementation. It is the most detailed level of BLM planning.

Actual Use - the location, number, and kind of livestock that graze on an allotment or portion of an allotment, and how the livestock graze on it.

Agricultural Land Use - the total acres of land devoted to producing crops and raising livestock.

Alfisols - mineral soils that develop in cool moist regions, often under woodland and forest cover, and have a significant accumulation of clay in the subsurface. They are capable of storing and providing more moisture and nutrients for plants than less developed soils or soils at lower elevations. Alfisols are generally productive soils that respond well to changes in management. Subdivisions of Alfisols include Eutroboralfs, Cryoboralfs, Haplustalfs, and Paleustalfs.

Allotment Grazing Right Owner - (A Coalition of Counties definition) - owner of the preference on BLM lands.

Allotment - an area of land designated and managed for grazing of livestock.

Anglo-Celtic - the Scots-Irish-Welsh, English-speaking ranching community of the American West.

Animal Unit Month (AUM) - the amount of forage needed to sustain one cow, five sheep or five goats for a month.

Aquifer - a water-bearing bed or zone below the earth surface that is capable of producing water as from a well.

Area of Critical Environmental Concern (ACEC) - an area within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, scientific, wildlife or scenic values.

Aridisols - mineral soils that have developed in dry regions. They are light colored; low in organic matter; and may have accumulations of sodium, soluble salts, and lime. Aridisols are common in the desert shrub, sagebrush, and piñon juniper vegetation communities. Without irrigation, Aridisols are not as productive as those that receive more precipitation and as such, they are slower to respond to changes in management. Subdivisions of Aridisols include Haplargids, Calciorthids, Camborthids, Paleargids, Paliorthids, Gypsiorthids, and Natrargids.

Basal Cover - a measurement of the amount of area plant species encompass on the ground. Basal cover is usually measured as the percentage of ground cover of plants, by species, in relationship to other forms of ground cover such as litter, bare ground, and rocks.

Best Management Practice (BMP) - a practice or combination of practices that are determined after problem assessment and examination of alternatives to be the most effective and practicable (technologically, economically, and institutionally) means of preventing or reducing the amount of pollution from nonpoint sources to a level compatible with predetermined goals.

Biological Assessment - a document prepared, usually in conjunction with an Environmental Impact Statement, that analyzes the specific impacts of a project and alternatives to any species listed as endangered or threatened, or proposed to be listed as such, under the Endangered Species Act, that may occur in the proposal area or be affected by the proposal. The Biological Assessment (BA) is a requirement of the Section 7 (Section 7(a)2 of the Endangered Species Act) Consultation between a Federal Agency and the U.S. Fish and Wildlife Service (FWS). FWS uses the information in a BA to render an opinion as to whether the proposed project will jeopardize the continued existence of any listed species. FWS may suggest or require adjustments to the action to avoid adverse impacts or jeopardizing the existence of a species.

Biotic - refers to living components of an ecosystem, e.g., plants and animals.

Browse - (noun) the tender shoots, twigs, and leaves or trees and shrubs often used as food by cattle, deer, elk, and other grazing animals. (Verb) to consume, or feed on.

Capability - the capacity for an indicated use or development.

Climax Vegetation - the final vegetation community and highest ecological development of a plant community that emerges after a series of successive vegetational stages. The climax community perpetuates itself indefinitely unless disturbed by outside forces. Climax is synonymous with Potential Natural Community in BLM vegetation condition descriptions.

Conservation Recommendations (CR) - discretionary actions suggested by the U.S.Fish and Wildlife Service to minimize or avoid the adverse effects of an action. Such actions are not required, but are highly recommended.

Culture - customary beliefs, social norms and marital traits of a group...of racial, religious or social group integrated pattern of human behavior passed to succeeding generations and that complex whole that includes knowledge, belief, morals, law, customs, opinions, religion, superstition and art.

Custom - a usage or practice of the people, which, by common adoption and acquiescence, and by long and unvarying habit, has become compulsory and has acquired the force of law with respect to the place or subject- matter to which it relates...An habitual or customary practice, more or less widespread, which prevails within a geographic or sociological area.

Desired Plant Community (DPC) - (A Coalition of Counties definition) - the designed vegetative mosaic to meet RMP goals as developed through a statutory process that balances resource conservation with individual, social cultural/historic economic opportunities to promote, sustain and enhance local communities.

Desired Plant Community (DPC) - the plant community which provides the vegetation attributes required for meeting or exceeding RMP vegetation objectives. The DPC must be within an ecological site's capability to produce these attributes through natural succession, management action, or both. A specific description of the vegetation needed to meet the vegetation objectives of a detailed activity plan or implementing action can be described as a desired plant community.

Desired Resource Condition - the condition of the soil and vegetation resource that management actions are focused upon achieving.

Direct Economic Impacts - the sum of economic impacts to an individual sector which is directly impacted.

Diverse - a variety of different species (plant or animal).

Ecological Site - (A Coalition of Counties definition) - classification of an area that would be expected to produce a characteristic potential biotic community that has a predictable plant composition and animal production.

Ecological Site - a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.

Economic Activity - the dollar flows with an economy.

Economic Impacts - change in dollar flows (economic activity), personal income, and jobs, (FTEs) associated with an external change to the economy.

Ecosystem - a complex self-sustaining natural system which includes living and nonliving components of the environment and the circulation of matter and energy between organisms and their environment.

Endemism - describes the distribution of a species where it is limited to very small or unique areas or habitats.

Energy Flow - the flow of energy (release and capture) through the ecosystem.

Entisols - mineral soils that lack profile development (soil horizons) and are often called young soils. Entisols are formed in recently deposited material that typically is coarse textured and low in nutrients. They

are often found in lower elevations, and arid and semiarid environments supporting desert shrub and sagebrush communities especially along existing stream channels and floodplains. They generally respond slowly to changes in management. Subdivisions of Entisols include Torriorthents, Torrifluvents, Ustifluvents, Torrispamments, Ustorthents, and Cryorthents.

Environmental Assessment (EA) - a concise public document prepared to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding no significant impact. It includes a brief discussion of the need for the proposal, alternatives considered, environmental impact of the proposed action and alternatives, and a list of agencies and individuals consulted.

Environmental Impact Statement (EIS) - a formal public document prepared to analyze the potential impacts (both beneficial and adverse) on the environment of a proposed project or action and release for comment and review. An EIS must meet the requirements of NEPA, CEQ guidelines, and directives of the agency responsible for the proposed project or action.

Erosion - Accelerated - erosion is that caused by man's activities because it is in addition to the natural or geologic erosion.

Erosion - Natural or Geologic - erosion that occurs over time by natural forces of nature such as by wind, water, ice or gravity.

Evapotranspiration - that part of precipitation returned to the air through direct evaporation or by transpiration of vegetation.

Family Stability - the ability of the family to function in harmony without family strife, such as domestic violence and divorce.

Field Office - the smallest administrative subdivision of the BLM, (formerly called Resource Areas RAs).

Field Office Manager - the individual in charge of the field office having full responsibility for public land resource management and delivery of BLM products, services and customer services to land users and the public for a designated portion of the geographical area under the jurisdiction of the BLM State Office.

Financial Threshold for Production - is the minimum number of AUMs required for the given typical ranch to meet all variable production costs.

Financial Threshold for Risk - is the minimum number of AUMs required for the given typical ranch to meet all variable production costs plus all fixed overhead costs.

Folial Cover - the percentage of ground covered by a downward vertical projection of the aerial portion of plant foliage, excluding small openings in the canopy.

Full Time Equivalents (FTE) - equal to one full time job.

Functioning At Risk - uplands or riparian-wetland areas that are properly functioning, but soil, water, or vegetation attributes makes them susceptible to degradation and lessens their ability to sustain natural biotic communities. Uplands are particularly at risk if their soils are susceptible to degradation. Human activities, past or present, may increase the risk.

Guidelines - (A Coalition of Counties definition) - guidelines for grazing management are methods and practices to ensure that standards can be met or that progress can be made toward meeting that end.

Guidelines - guidelines for grazing management are methods and practices to ensure that standards can be met or that progress can be made toward meeting that end.

Hydrologic Cycle - the complete cycle of phenomena through which water passes, commencing as atmospheric water vapor, passing into liquid and solid form as precipitation, thence along or into the ground surface, finally again returning to the form of transpiration. Also called "water cycle."

Hydromodification - any man-made alteration of the hydrologic function of the stream channel, including streambank destabilization and reduction of riparian vegetation.

Ice Cream Species - an exceptionally palatable species sought and grazed first by livestock and game

animals. Such species are usually overutilized under proper grazing.

Incidental Take - an official permitting of taking (defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting a listed species). An incidental take statement also includes specific terms and conditions to implementation of he action.

Interested Public - an individual, group or organization that has submitted a written request to the authorized officer to be provided an opportunity to be involved in the decisionmaking process for the management of livestock grazing on specific grazing allotments or has submitted written comments to the authorized officer regarding the management of livestock on a specific allotment.

Lentic - standing water riparian habitats, such as lakes, ponds, or playas.

Livestock Grazing Plan - an activity plan developed consistent with the definition of 43 USC 1702(k), that focuses on and contains the necessary instructions for management of livestock grazing on specific public lands to meet resource condition, sustained yield, multiple use, economic, and other objectives.

Local Government Stability - the ability to provide services such as education, medical care, emergency services, environmental services, law enforcement, fire protection, water, roads, and waste services.

Lotic - moving water riparian habitats such as rivers, creeks, or springs.

Management Objectives - objectives established by BLM to ensure the health of land resources and resolve multiple use conflicts.

Mitigation - action taken to alleviate or lessen the adverse effects of a management practice.

Mollisols - mineral soils that have thick, dark-colored surface horizons rich in organic matter. They are fertile and extend from the higher mountains to the prairie grasslands where they are most abundant. Mollisol soils support the plains grasslands, chapparral-mountain shrub, mountain and plateau grasslands, and coniferous-deciduous forest community types. Mollisols are the most productive soils and respond well to management changes. Subdivisions of Mollisols include Argiborolls, Cryborolls, Haplustolls, Argiustolls, Calciustolls, and Paleustalls.

Monitoring - the orderly process of collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives.

Morphology - see Stream Morphology

Multiple Use - a combination of balanced and diverse resource uses that considers long-term needs or renewable and nonrenewable resources, including recreation, rangeland, timber, minerals, watershed, and wildlife, along with scenic, scientific, and cultural values.

National Scenic Trail - a trail designated under The National Trail System Act. It must be an extensive trail, located for its outdoor recreation potential, and for the conservation and enjoyment of nationally significant scenic, historic, natural, or cultural qualities in its vicinity.

Native - a species of plant or animal that naturally occurs in an area and was not introduced by humans.

Nonfunctioning Condition - riparian-wetland areas are considered to be in nonfunctioning condition when they do not provide adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows thus are not reducing erosion, improving water quality, or other normal characteristics of riparian areas. The absence of certain physical attributes such as flood plain where one should be are indicators of nonfunctioning condition. Uplands are considered to be in nonfunctioning condition when existing vegetation and ground cover do not maintain soils capable of sustaining natural biotic communities. See Properly Functioning Condition and Functioning At Risk.

Nonpoint Sources - the Environmental Protection Agency (EPA), in Federal Register 41 (119), Friday, June 18, 1976, gave three general criteria for nonpoint sources. They are: 1. The pollutants discharged are induced by natural processes, including precipitation, seepage, percolation, and runoff; 2. The pollutants discharged are not traceable to any discrete of

identifiable facility; and 3. The pollutants discharged are better controlled through the application of best management practices, including process and planning techniques.

Notice of Intent (NOI) - a notice published in the Federal Register to announce the beginning of the planning/NEPA process and to seek public involvement.

Notice of Availability (NOA) - a notice in the Federal Register to announce the availability of a document for public review.

Nutrient Cycle - circulation of chemical elements, such as carbon or nitrogen, in specific pathways from the non-living (abiotic) parts of the environment into the organic substances (plants and animals), and then back again into abiotic forms.

Off-Highway Vehicle (OHV) - any motorized vehicle capable of or designed for travel on or immediately over natural terrain. OHV use includes driving off a designated road for purposes including, but not limited to recreation, ranching, mineral operations, hunting, fuelwood gathering, etc.

Opinion - refers to the opinion of the U.S. Fish and Wildlife Service in judging whether the action analyzed will jeopardize the continued existence of a species.

Optimum Infiltration - (A Coalition of Counties definition) - the capture of precipitation based on soil type and geologic conditions measured by the delivery of water to ground and surface sources.

Peer Review - review by other professionals within the discipline to insure technical adequacy.

Personal Income - includes wages, salaries, and proprietary income.

Plan Amendment - a document that changes a part of the existing plan or adds to it, allows new proposals to be considered and incorporated, if warranted, into the plan. It helps to keep the plan useful and extends it life. Formal notice and public involvement is required.

Plan Maintenance - keeping the data base and planning current, it makes no changes in planning decisions, however there is opportunity to refine decisions. There is no formal notice or public involvement required.

Potential - existing in possibility, capable of development into actuality.

Production Goals - (A Coalition of Counties definition) - the level of goods and services, both commodity and non-commodity, expected to be achieved from the management of a given area of land. These are designed to meet statutory requirements and public values as developed at the local level.

Productive - having the quality or power of producing.

Proper Functioning Condition - riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize steambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and water depth, duration and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is influenced by geomorphic features, soil, water and vegetation.

Public Land Health - the degree to which the integrity of the soil and the ecological processes of public lands ecosystems are sustained. Public land health exists when ecological processes are functioning properly to maintain the structure, organization and activity of the system over time.

Public Lands - any land or interest in land (outside of Alaska) owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management.

Rangelands - land on which the native vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs or shrubs suitable for grazing

or browse use. Includes lands revegetated naturally or artificially to provide a forage cover that is managed like native vegetation. Rangelands may consist of natural grassland, savannas, shrublands, most deserts, alpine communities, coastal marches and wet meadows.

Range Condition - the current productivity of a range relative to what that range is naturally capable of producing.

Range Site - a distinctive site capable of supporting a native plant community typified by an association of species that differs from that of other range sites in the kind or proportion of species or in total production.

Reasonable and Prudent Alternatives - are non-discretionary companions to a jeopardy determination issued by the U.S. Fish and Wildlife Service.

Reasonable and Prudent Measures (RPM) - are non-discretionary (required implementation) measures attached to an Incidental Take statement to guide and minimize Incidental Take. RPMs are binding on all permits and permittees engaging in activities covered by Incidental Take. RPMs may also be applied without an Incidental Take statement.

Recharge - process by which water is added to the zone of saturation, as recharge of an aquifer.

Resilient - capable of withstanding shock without permanent deformation or damage and return freely to it previous position, shape, or condition.

Resource Management Plan (RMP) - a written land use plan that outlines BLM's decisions and strategies for management of the resources in a particular area (usually a resource area). The RMP has been used by the BLM since 1980.

Resource Advisory Council (RAC) - a group of citizens representing a diversity of interests concerned with management of public lands. In New Mexico, a statewide body with members advising the BLM State Director about public land issues and solutions.

Riparian - an area of land directly influenced by permanent water. It has visible vegetation of physical characteristics reliant upon continuous presence of water. Lakeshores and streambanks are typical riparian areas. Sites such as ephemeral streams or washes that exhibit the presence of vegetation which is dependent upon free water in the soil would be considered riparian areas.

Rural Community Stability - the capacity of the rural community to absorb the rate and magnitude of change.

Scoping - As defined in the CEQ Regulations (40CFR 1500-1508), an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. Scoping may involve public meetings, field interviews with representatives of agencies and interest groups, discussions with resource specialist and managers, written comments in response to new releases, direct mailings and articles about the proposed action, and scoping meetings.

Section 3 - a permit authorizing grazing use on public lands inside a grazing district boundary. It is a reference to that section of the Taylor Grazing Act pertaining to lands within the district boundary.

Section 15 - a lease authorizing grazing use on public lands outside the grazing district boundary. It is a reference to that section of the Taylor Grazing Act pertaining to lands outside the district boundary.

Sediment Capture - deposition of sediment which has been transported by air, water or gravity (sedimentation).

Seral - Refers to the ecological stage of a plant community with respect to ecological succession. Seral stages used by BLM in describing ecological succession are: early seral, mid-seral, late seral, and climax or potential natural community.

Silviculture - the portion of forest management related to establishment, development, reproduction and care of trees.

Site Potential - (A Coalition of Counties definition) - the ability of a particular site to produce various vegetation compositions and production levels as limited by edaphic, climatic, geologic, genetic and topographic factors.

Soil Permeability - the quality of the soil horizon that enables water or air to move through it. The

permeability of a soil may be limited by the presence of one nearly impermeable horizon even though the others are permeable.

Soil Taxonomy - a soil classification system based on observable or measurable properties primarily those which can be observed or measured in the field.

Standard - (A Coalition of Counties definition) an acknowledged measure of comparison regarding a resource upon which a judgement is based. Measurements include adequate and reproductive sampling methods, sampling size and sampling frequency and duration to obtain discrete values for each ecological site within a management area.

Standard - an acknowledged measurement of comparison of public land and its resources upon which a decision is based.

Stream Morphology - stream dimensions, patterns and streambed profile. Represents the integrated response of a stream that enables it to be in balance with the prevailing energy gradients, sediment supply and sediment transport characteristics.

Streambank Stability - the ability of a streambank to withstand the range of flows to which it is subject.

Sustainable - (A Coalition of Counties definition) - capable of maintaining RMP goals in perpetuity. Sustainable can be equated with proper ecological functioning.

Sustainable - capable of being maintained in perpetuity, such that the portion of the renewable resource (vegetation or animals) removed from the public lands by one harvest is replaced by growth or reproduction before another harvest occurs.

Sustained Yield - the continuation of a healthy desired plant community.

Taxonomic - refers to the system of classification used to establish the scientific names of organisms, or names of soils.

Threshold - a point, below which there is no apparent or measurable adverse effects.

Trend - the direction of change over time, either toward or away from desired management objectives.

Upland - the portion of a watershed which provides drainage to channels and streams, and which is normally dry on the surface.

Watershed - the total area above a given point on a waterway that contributes runoff water to the streamflow at that point.

Wetland - areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and which, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wilderness Study Area (WSA) - a roadless area or island that has been inventoried and found to have characteristics described in Sections 603 of FLPMA and Section 2(c) of The Wilderness Act of 1964. These lands are currently managed under the "Interim Management Policy and Guidelines for Lands Under Wilderness Review".

Wilderness Area - an area formally designated by Congress as part of the National Wilderness Preservation System.

Value of Production (VOP) - the total amount of output produced by an individual sector.

REFERENCES

REFERENCES

Allen, T. F. and Hokstra, T. 1994. *Sustainability: a matter of human values in a material setting*. USDA Forest Service General Technical Report RM GTR-266, 10/17-Ft. Collins, Colorado, 20/94.

Allred, Kelly W. 1996. Vegetative Changes in New Mexico Rangelands. *New Mexico Journal of Science* Vol 36, November 1996.

Archer, T. and Snider, G. 1984. The effect of reduction in permitted use on Gila county. *Technical Report*. Tucson: Department of Agriculture Economics, University of Arizona.

Baca, Patrick J. 1996. Public opinion survey on public lands in New Mexico. Presented to the Resource Advisory Committee, Public Policy Center, University of New Mexico, Santa Fe, June 28, 1996.

Bedell, T.H 1992. Grazing to Maintain Healthy Range. Cattle Producer's Library. Cooperative Extension System. University of Idaho. CL525.

Blehar, M. C. 1979. Family adjustment to unemployment. *Families Today*, 1: 413-438. Washington, DC: National Institute of Mental Health.

Borrero, M. 1980. Psychological and emotional impact of unemployment. *Journal of Sociology and Social Welfare*. 916-935.

Box, T. 1993. Sustaining land use and cultural change. William P. Thompson Memorial Lecture Series, Northern Arizona University, Flagstaff, Arizona, March 30 1993.

Branch, K., Thompson, Creighton, and Hooper 1982. Guide to Social Assessment. Mountain West Research, North, Inc. Billings, Montana

Chase, A. 1986. Playing God in Yellowstone. Harcourt Brace Jovanovich Publishers, San Diego, California.

Cole, G.F. 1971. An ecological rationale for the natural or artificial regulation of native ungulates in parks. Pp. 417-425. Transactions of the 36th North American Wildlife and Natural Resources Conference, Portland, Oregon, March 7-10, 1971.

Condrey, J. and Guillen. 1996. Growth in New Mexico. *Impacts and Opinions: Executive Summary.* Santa Fe: Local Government Division, Special Programs and Planning Bureau.

Council of Agriculture Science and Technology. Grazing on public lands. *Task Force Report No. 129, Ames, IA,* (December 1996) and *State of Public Rangelands BLM Report* (1990).

Cronon, W. 1992. *Under an open sky: rethinking America's western past*. New York: WW Norton & Co.

Daughty, P. J. and Snider, G. 1997. Ecological Economic aspects of rangeland water development. *Environmental Economic and Legal Issues Related to Rangeland Water Developments.* Symposium proceedings sponsored by ASU College of Law, BLM, et al., Arizona State University, November 13-15, 1997.

Dick-Peddie, W.A. 1993. *New Mexico Vegetation, Past, Present, and Future.* Albuquerque: University of New Mexico Press.

Fagin, L. and Little, M. 1984. *The forsaken families: the effects of unemployment on family life.* Harmondsworth, Middlesex, England: Penguin Books.

Farley, C. 1995. Sorry no vacancies: worries that their way of life is threatened, rocky mountain residents fight growth. *Time*, August 7.

Finch, D. and Tainter, J. 1993. Ecology, diversity, and sustainability of the middle Rio Grande basin. *Sustaining Systems: Implementing an Ecological Approach to Land Management*. Flagstaff, Arizona, July.

Fowler, J.M., D. Rush, and J. Hawkes. 1993. *Characteristics of Western Livestock Industry.* (In Cooperation with the National Cattlemans Association, Western Livestock Producers Alliance, New Mexico Cooperative Extension Service, and New Mexico State University.) Las Cruces: New Mexico Cooperative Extension Service.

Fowler, J. 1994. Rangeland reform '94. Statement to

the Committee for Energy and National Resources, United States Senate, Washington, DC, May 14, 1994.

Gellis, A. 1991. Decreasing trends of suspended sediment concentrations at selected streamflow stations in New Mexico. Agencies and Science Working for the Future, New Mexico Water Resources Research Institute, Santa Fe, New Mexico, November.

Geranious, N. 1997. Rural areas show growth. *Albuquerque Journal,* April 27, 1997.

Hebert, J. 1996. Ranchers riding into sunset: population boom spawns land grab, erosion of rural ways. *Albuquerque Journal,* November 24, 1996.

Hecox, W. and Ack, B. 1996. Charting the Colorado plateau: an economic and demographic exploration. Flagstaff: Grand Canyon Trust.

Heady, H.F. and R.D. Child. 1994. Rangeland Ecology and Management. Westview Press, Boulder Colorado.

Jobes, Patrick C. 1986. "Ranchland: Impacts on Rural Communities." *In Differential Social Impacts of Rural Resource Development,* edited by Pamela D. Elking-Savatsky. Boulder, CO: Westview Press.

Krausman, Paul R. 1996. Rangeland Wildlife. Society for Range Management. P 68.

Kelso, M. M. 1983. The fruitless search for tenure security on publicly owned grazing lands: Can we make it more fruitful. Presented at the Rangeland Policy and Range Economics Research Symposium, University of Wyoming, July 1983.

Kennedy, J.J.; Fox, B.L.; and Osen, T.D. 1994. Changing social values and images of good public rangeland management. *Rangelands* 17(4).

Libbin, J. L. and J. M. Hawkes. 1991. *Crop Cost and Return Estimates in New Mexico, l991*. Las Cruces: Agricultural Experiment Station, College of Agriculture and Home Economics, New Mexico State University.

_____. 1992. *Crop Cost and Return Estimates in New Mexico, 1992.* Las Cruces: Agricultural Experiment Station, College of Agriculture and Home Economics, New Mexico State University.

_____. 1993. *Crop Cost and Return Estimates in New Mexico, 1993*. Las Cruces: Agricultural Experiment Station, College of Agriculture and Home Economics, New Mexico State University.

Martin, W. E. 1981. Mitigating the economic impacts of agency programs for public rangeland. Workshop on Applying Socio-Economic Techniques to Range Management Decision Making, Boise Idaho, May.

McClaran, M.P. and. VanDevender, T.R (Eds). 1995. *The Desert Grassland.* Tucson: The University of Arizona Press.

McCormick, J. and Galt, D. (D. Young, Ed.). 1993. *Symposium on vegetation management of hot desert rangeland ecosystems.* Tucson: BLM and University of Arizona Press.

McWhiney, Grady, 1988. Cracker Culture: Celtic Ways in the Old South, Tuscaloosa: University of Alabama Press.

Memorandum of Understanding. 1990. The MOU is between NMDGF and BLM. Santa Fe, NM.

Nalivka, J. 1993. *Rangeland reform 94: A policy designed to insure the demise of the Western range livestock industries*. Wichita: Inter Mountain Resource Economics.

National Environmental Policy Act. 1969. §101, and 1202, 42 United States Code §4331(b).

New Mexico Environment Department. 1998. *1998-2000 State of New Mexico §303(d) List for Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDLs). Final Record of Decision (ROD) for River/Stream Listings.* July 1998. Santa Fe: New Mexico Environment Department.

New Mexico Office of Cultural Affairs. 1996. On fertile ground. *Assessing and Cultivating New Mexico's Cultural Resources*. Santa Fe: Office of Cultural Affairs.

New Mexico Water Quality Control Commission. (NMWQCC) 1994. New Mexico Nonpoint Source Management Program, 1994. Santa Fe, NM.

New Mexico Water Quality Control Commission.

(NMWQCC) 1998. Water quality and Water Pollution Control in New Mexico, 1998. Santa Fe, NM.

Olson, D. an S.cott, L. 1994. *Micro IMPLAN User's Guide.* Version 91-F. Stillwater: Minnesota IMPLAN Group Inc.

O'Neill, Michael. 1996. Subject: Fossil Deposits (Personal communication.) BLM, Albuquerque Field Office.

Polley, A. 1996. Ecosystems management: three essential requirements. Presentation to the BLM Resource Advisory Council in Taos, New Mexico, April 18, 1996.

Seaman, Timothy. 1996. Subject: Number of cultural sites by time period. (Personal communication.) ARMS, State of New Mexico, Office of Cultural Affairs, Santa Fe, New Mexico.

Smith, P. 1997. *Analysis of the BLM Healthy Public Land Alternative Impacts on New Mexico Ranch Cultures.* Tucson: Department of Cultural Studies, University of Arizona.

Steiner, F. 1997. Viewing rangelands from a regional perspective: The value of watershed and ecosystem planning, environmental, economic and legal issues related to rangeland water developments. Symposium proceedings sponsored by ASU College of Law, BLM, et al., Arizona State University, November 13-15, 1997.

Stephenson, Bill. 1994 Subject: Wildlife Management (Personal communication.) BLM, Roswell Field Office.

Sutcliffe Dan. NMDGF, 1997. Subject: Control of Elk (Personal communication.) BLM, Roswell Field Office.

Swetnan, Thomas W; and Betancourt, Julio L. 1990 Fire-Southern Oscillation Relations in the Southwestern United States, *Science*, Vol 249 (4772) August 31, 1990.

Thomas, H. Smith. 1994. History of Public Lands Grazing. *Rangelands,* (16)6.

Thompson, B.C.; Crist, P.J.; Prior-Magee, J.S.; Deitner, R.; Garber, D.L.; and Hughes, M.A. 1996. Research completion report, gap analysis of biological diversity conservation in New Mexico using geographic information systems. *Cooperative Agreement No. 14-16-0009-1572; Res. Work Order No. 13*. Las Cruces: National Biological Service, Division of Cooperative Research and New Mexico State University, Agricultural Experiment Station.

Torell, L.A. and Hawkes, J.M. 1991. *Range Livestock Cost and Return Estimates for New Mexico, 1991.* Las Cruces: Agricultural Experiment Station, Range Improvement Task Force, New Mexico State University.

_____. 1992. *Range Livestock Cost and Return Estimates for New Mexico, 1992.* Las Cruces: Agricultural Experiment Station, Range Improvement Task Force, New Mexico State University.

_____. 1993. *Range Livestock Cost and Return Estimates for New Mexico, 1993.* Las Cruces: Agricultural Experiment Station, Range Improvement Task Force, New Mexico State University.

U.S. Commerce Department, Bureau of Economic Analysis,Regional Measurement Division, Economics and Statistics Bureau of Census. 1995. *Regional economic Information System, 1969 - 1993*. Washington, D.C.: Government Printing Office.

U.S. Department of Agriculture New Mexico Agricultural Statistics Service. 1991. *New Mexico Agricultural statistics, 1991*. Las Cruces: New Mexico Department of Agriculture.

_____. 1992. *New Mexico Agricultural statistics, 1992*. Las Cruces: New Mexico Department of Agriculture.

_____. 1993. *New Mexico Agricultural statistics, 1993*. Las Cruces: New Mexico Department of Agriculture.

_____. 1995. *New Mexico Agricultural statistics, 1995*. Las Cruces: New Mexico Department of Agriculture.

U.S. Department of Agriculture, Soil Conservation Service. 1981. Land Resource Regions and Major Land Resource Areas of the United States. *Agriculture 2%*. Washington, D.C.: SCS.

U.S. Department of the Interior, Bureau of Land Management. 1934 *Taylor Grazing Act,. As amended and supplemented*. 42 United States Code §315a-n.

_____. 1966. *Public Land Statistics.*

Washington, DC,: BLM.

_____. 1972. *Rio Puerco Special Evaluation Report*. Albuquerque: Albuquerque District Office.

_____. 1976. *Public Land Statistics.* Washington, DC,: BLM.

_____. 1985. *White Sands Draft Resource Management Plan/Environmental Impact Statement. Caballo Resource Area.* Las Cruces: BLM, Caballo Resource Area.

_____. 1986. *Macho Habitat Management Plan*, *Roswell Resource Area.* Roswell: BLM, Roswell Resource Area.

_____. 1986. *Public Land Statistics*. Washington, DC,: BLM

_____. 1986 (reprinted 1992). *Resource Management Plan and Record of Decision, Rio Puerco Resource Area.* Albuquerque: BLM, Rio Puerco Resource Area.

_____. 1986. *White Sands Resource Management Plan and Record of Decision*, *Caballo Resource Area.* Las Cruces: BLM, Caballo Resource Area.

_____. 1988. *Proposed Resource Management Plan and Final Environmental Impact Statement, Socorro Resource Area.* Socorro: BLM, Socorro Resource Area.

_____. 1988. *Resource Management Plan and Record Decision, Carlsbad Resource Area.* Carlsbad: BLM, Carlsbad Resource Area.

_____. 1988. *Resource Management Plan and Record Decision, Farmington District.* Farmington: BLM, Farmington District Office.

_____. 1988. *Resource Management Plan and Record of Decision, Taos Resource Area.* Taos: BLM, Taos Resource Area.

_____. 1989. *Public Land Statistics.* Washington, D.C.: BLM.

_____. 1989. *Resource Management Plan and Record of Decision, Socorro Resource Area.* Socorro: BLM, Socorro Resource Area.

_____. 1990. *Public Land Statistics.* Washington, D.C.: BLM.

_____. 1990. *Resource Management Plan Amendment for McGregor Range and Record of Decision.* Las Cruces: BLM, Caballo Resource Area.

_____. 1990. State of Public Rangelands 1990. *BLM Management Report*. Santa Fe: BLM, New Mexico State Office.

_____. 1991. *Albuquerque District-wide Oil and Gas Resource Management Plan Amendment/EIS and Record of Decision.* Albuquerque: BLM, Albuquerque District Office.

_____. 1991. *New Mexico Wilderness Study Report, Statewide Summary.* Santa Fe: BLM, New Mexico State Office.

_____. 1991. *Public Land Statistics.* Washington, D.C.: BLM.

_____. 1992. *Public Land Statistics.* Washington, D.C.: BLM.

_____. 1992. *Recreation 2000, A Strategic Plan*. Washington, D.C.: BLM.

_____. 1993. *Dark Canyon Environmental Impact Statement.* Carlsbad: BLM, Carlsbad Resource Area.

_____. 1993. *Resource Management Plan and Record Decision, Mimbres Resource Area.* Las Cruces: BLM Mimbres; Resource Area.

_____. 1994. *Draft Resource Management Plan Amendment/Environmental Impact Statement, Carlsbad Resource Area.* Carlsbad: BLM, Carlsbad Resource Area.

_____. 1994. *Draft Resource Management Plan/Environmental Impact Statement, Roswell Resource Area.* Roswell: BLM, Roswell Resource Area.

_____. 1994. *Rangeland Reform Draft EIS.* BLM, Washington, D. C.: BLM.

_____. 1995. *BLM Interim Management Policy for Lands under Wilderness Review. Handbook - 8550-1*. Washington, DC,: BLM.

_____. 1995. *National Rangeland Inventory Monitoring and Evaluation Report, Fiscal Year 1995.* Washington, D.C.: BLM.

_____. 1995. Riparian Area Management. *Technical Reference 1737-9.* Washington, D.C.: BLM.

_____. 1996. *Public Land Statistics.* Washington, DC,: BLM.

_____. 1996. *Recreation Management Information System*. Santa Fe, NM,: BLM

_____. 1996. *Automated Lands and Minerals Record System.* Santa Fe: BLM, New Mexico State Office.

_____. 1996. *Farmington District Office Environmental Assessment Log.* Farmington: BLM, Farmington District Office.

_____. 1996. *Quarterly Fluid Mineral Reports, 1986 to 1996.* Santa Fe: BLM, New Mexico State Office.

_____. 1996 (and previous years). *Roswell Resource Area Environmental Assessment Log.* Roswell: BLM, Roswell District Office.

_____. 1997. *Public Land Statistics.* Washington, D.C.: BLM.

_____. 1997. Western Weed Team Memorandum, Billing, MT. February 19, 1997.

_____. 1997. Urban Interface Reports. Submitted to the EIS State/BLM Team, Santa Fe, March 17, 1997.

_____, Interagency Resources Division. (No Publication Date.) Guidelines for Evaluating and Documenting Traditional Cultural Properties. *National Register Bulletin 38*.

U.S. Department of the Interior, Minerals Management Service. 1996. *State Mineral Summaries, Fiscal Year 1995, Royalty Management Program.* Denver: MMS.

_____. 1996. *Mineral Revenues 1995, Report on Receipts from Federal and Indian Leases.* Denver, Colorado: MMS.

Werther, G. 1997. Wildlife waters at the urban interface: problems of maintenance and enforcement. *Environmental, Economic and Legal Issues Related to Rangeland Water Development.* Symposium proceedings sponsored by ASU College of Law, BLM, et al., Arizona State University, November 13-15, 1997.

Wright, J. B. 1993. *Rocky Mountain Divide:Selling and Saving the West*. Austin: University of Texas Press.

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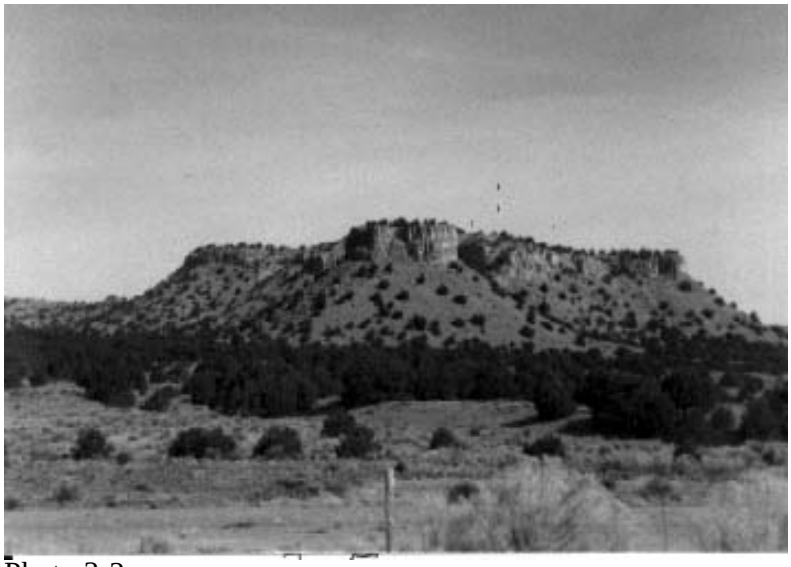
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