

## DECISION RECORD

Decision: It is my decision to authorize the issuance of a term grazing permit for public lands on the Thomas Cooper Ranch, Allotment 65020. Additional mitigation measures identified in the environmental impacts sections of the attached environmental assessment have been formulated into terms and conditions of the permit. Comments on this proposal were considered, and necessary changes have been incorporated into the environmental assessment.

Signed by T. R. Kreager  
Assistant Field Manager

8/16/99  
Date

ENVIRONMENTAL ASSESSMENT

for

Section 3

GRAZING AUTHORIZATION

on

ALLOTMENT 65020

Township 6 South, Range 26 East  
Sections 16, 17, 20-23, 25-29, 32-35 (all or part)

Township 7 South, Range 26 East  
Sections 2-5 (all or part)

EA-NM-066-98-149

December 1998

U.S. Department of the Interior  
Bureau of Land Management  
Roswell Field Office  
Roswell, New Mexico

## I. BACKGROUND

### A. Introduction

When authorizing livestock grazing on public range, the Bureau of Land Management (BLM) has historically relied on a land use plan and environmental impact statement to comply with the National Environmental Policy Act (NEPA). A recent decision by the Interior Board of Land Appeals, however, affirmed that the BLM must conduct a site-specific NEPA analysis before issuing a permit or lease to authorize livestock grazing. This environmental assessment fulfills the NEPA requirement by providing the necessary site-specific analysis of the effects of issuing a new grazing permit on Allotment 65020.

The scope of this environmental assessment is limited to the effects of issuing a new grazing permit on Allotment 65020. Over time, the need could arise for subsequent management activities which relate to grazing authorization. These activities could include vegetation treatments (e.g., prescribed fires, herbicide projects), range improvement projects (e.g., fences, water developments), and others. Future rangeland management actions related to livestock grazing would be addressed in project-specific NEPA documents as they are proposed.

Though this environmental assessment specifically addresses the impacts of issuing a grazing permit on Allotment 65020, it does so within the context of overall BLM management goals. Allotment management activities would have to be coordinated with projects intended to achieve those other goals. For example, a vegetation treatment designed to enhance watershed condition or wildlife habitat may require rest from livestock grazing for one or more growing seasons. Requirements of this type would be written into the permit as terms and conditions.

### **B. Purpose And Need For The Proposed Action**

The purpose of issuing a new grazing permit would be to authorize livestock grazing on public range on Allotment 65020. The permit would be needed to specify the types and levels of use authorized, and the terms and conditions of the authorization pursuant to 43 CFR §§4130.3, 4130.3-1, and 4130.3-2.

### **C. Conformance With Land Use Planning**

The proposed action conforms with the Roswell Approved Resource Management Plan (RMP) and Record of Decision (BLM 1997) as required by 43 CFR 1610.5-3.

### **D. Relationships to Statutes, Regulations, or Other Plans**

The proposed action and alternatives are consistent with the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1700 et seq.); the Taylor Grazing Act of 1934 (43

U.S.C. 315 et seq.), as amended; the Clean Water Act (33 U.S.C. 1251 et seq.), as amended; the Endangered Species Act (16 U.S.C. 1535 et seq.) as amended; the Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.); Executive Order 11988, Floodplain Management; and Executive Order 11990, Protection of Wetlands.

## **II. PROPOSED ACTION AND ALTERNATIVES**

### **A. Proposed Action - Current Livestock Management**

The proposed action is to issue Mr. Thomas S. Cooper a ten-year permit to graze cattle on Allotment 65020. Permitted use would be based on a 1996 livestock-use agreement that authorizes grazing of 160 animal units (AUs), which corresponds to 1266 animal unit months (AUMs).<sup>1</sup> Total permitted use includes three AUs (41 AUMs) yearlong at 100 percent on the River East Pasture, plus 157 AUs (1225 AUMs) distributed yearlong among the other pastures at 65 percent public range.

Under the 1996 agreement, the BLM does not control livestock numbers in the River East Pasture. Livestock were being grazed on privately-owned irrigated cropland, interspersed with 142 acres of public range. To account for livestock use of the public range in the River East Pasture, the permittee is billed for three AUs (41 AUMs) at 100 percent.

Under the proposed action current management of the allotment would continue as described above. There would be basically no change from current livestock management or to existing range improvements already in place.

### **B. BLM Preferred Alternative - Modified Livestock Management**

Permitted use would be the same as described under the Proposed Action.

Alternative B focuses on the health of the Pecos River floodplain and associated riparian and aquatic habitat as part of the overall rangeland health considerations for the allotment. This alternative would require the following term and condition into the permit:

Cooperatively develop and implement an allotment management plan (AMP) to include seasonal use of the riparian area along the Pecos River, and the implementation of a rest-rotation grazing system. This would require the evaluation of existing improvements and their efficacy in supporting the rotational grazing system. The plan would supersede the 1996 Rangeland Agreement. Initiation of the plan would begin upon issuance of the permit and would be completed within two

---

<sup>1</sup> For a cattle operation, an animal unit (AU) is defined as one cow with a nursing calf or its equivalent. An animal unit month (AUM) is the amount of forage needed to sustain that cow and calf for one month.

years. The plan would include rangeland health objectives which reflect floodplain, riparian and wildlife habitat concerns. Management actions proposed in the AMP may require modification of the terms and conditions of the permit.

The plan would consider the following types of actions and projects:

- Exclude private lands in River East Pasture from the allotment
- Adjust livestock numbers, seasons of use, class of livestock
- Modify, replace, construct or abandon pasture fences
- Modify, replace, or construct additional livestock waters
- Conduct vegetation treatments (mesquite, saltcedar, Russian olive)
- Relocate feed, mineral, and salt lick areas away from the Pecos River
- Establish additional monitoring sites
- Construct and maintain water gaps across the Pecos River

Once the AMP is implemented, it would guide management for the term of the permit. Changes to the plan could be proposed by any participant of the plan. Through consultation, coordination and cooperation between participants, the plan could be amended or supplemented by mutual agreement.

### **C. No Grazing Permit Alternative**

Under this alternative a new grazing permit would not be issued for Allotment 65020. No grazing would be authorized on federal land on this allotment.

## **III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS**

### **A. General Setting**

Allotment 65020 is in Chaves County, 28 miles northeast of Roswell. The Pecos River flows north-to-south through a broad alluvial valley on the western portion of the allotment. The area west of the river rises from the valley floor to low terraces that are dissected by numerous small draws. Bosque Draw and Cottonwood Draw are major drainages dissecting high terraces to the west. Elevations range from 3582 feet at the downstream end of the river to 3894 feet at Bosque Peak.

The climate is semi-arid with normal annual temperatures ranging from 20°F to 95°F at Bitter Lake National Wildlife Refuge (Kunkel 1984). Observed minimum and maximum temperatures were -22°F and 113°F, respectively. Average annual precipitation is 11.6 inches, primarily as rainfall (Owenby et al. 1992). Annual precipitation has ranged from 3.11 inches to 21.08 inches (Kunkel 1984).

Allotment 65020 is considered a riparian allotment because of its 4.5 miles of riparian

habitat along the Pecos River, 1.7 miles of which are on public land. Riparian-wetland areas are directly influenced by permanent free water, whether at the surface or in the subsurface. Compared to adjacent upland sites, the riparian area has a greater amount and diversity of vegetation. The diversity of plant species and availability of water makes riparian areas prime wildlife habitat.

Though the riparian areas along the river have tremendous resource values, they have been altered by the regulation of river flows by upstream reservoirs, especially Sumner Lake. Durkin et al. (1994) point out that the lack of high flows and channel entrenchment have led to significant changes to the extent, character, and condition of the riparian/wetland community. The U.S. Fish and Wildlife Service (1997) also has found the alteration of flow patterns to be a principal threat to the Pecos bluntnose shiner, a federally threatened species in this reach of the river.

Reservoir releases are controlled by the the Bureau of Reclamation, and are largely driven by irrigation demands. Management of allotment riparian areas by the BLM and the permittee will be within the constraints imposed by the regulation of river flows.

Public lands on the allotment provide benefits for other users, as well as the permittee. These uses include recreation (e.g., hunting and wildlife viewing), and oil and gas development.

## **B. Allotment History**

The following information provides a historic context for current management of the allotment. More detailed information is on file at the BLM Roswell Field Office.

1981: Mr. Cooper obtained the ranch from William Sturgeon, then applied to the BLM for the transfer of grazing preference on the allotment.

1982: Allotment 65020 was categorized as an "1" allotment. "1" category allotments are in less than satisfactory condition, but have high potential for improvement and/or have resource conflicts.

1986: A rangeland agreement was signed by Mr. Cooper and the BLM. The agreement was based on monitoring data collected in 1981 and 1985, which indicated that range condition was static and that livestock numbers needed adjustment. Studies suggested that the allotment had potential for increased vegetative production through brush management and range improvements.

A Cooperative Management Plan (CMP) was prepared to address the issues in the rangeland agreement. Fences were constructed, waters were developed, and broom snakeweed was treated by the BLM in accordance with the plan.

1991: A new rangeland agreement was signed. Monitoring data collected in 1985 and

1990 suggested that range condition was improving, but the allotment remained in the “I” category. Grazing preference stayed the same, though active use increased slightly.<sup>2</sup>

1994: Mr. Cooper sold parts of his Cottonwood Ranch located to the west of Allotment 65020. He retained 3068 acres and combined it with Allotment 65020, which increased the grazing preference on the allotment. The additional acreage includes most of the allotment lands that are adjacent to the river.

Due to the inclusion of the Cottonwood Ranch acreage, changes in range condition, and other factors, the 1986 CMP has become outdated. A new management plan is needed to address current conditions on the allotment.

1996: A new rangeland agreement was signed to account for the Cottonwood Ranch land that became part of Allotment 65020. During the transfer process, the BLM determined the overall carrying capacity of the allotment, including the new acreage. Monitoring data collected in 1994 indicated that the range condition was satisfactory, and that enough forage was available for the current permitted use. The permitted use specified in the agreement is still in effect today.

### **C. Affected Resources**

The following resources or values are not present or would not be affected by the authorization of livestock grazing on Allotment 65020: Areas of Critical Environmental Concern, Cultural Resources, Native American Religious Concerns, Prime or Unique Farmland, Minority/Low Income Populations, Hazardous or Solid Wastes, Wild and Scenic Rivers, and Wilderness. Affected resources and the impacts resulting from livestock grazing are described below.

#### **1. Livestock Management**

##### Affected Environment

In the past, the allotment has been permitted to be grazed yearlong by cattle. The permit authorized 160 AUs, and stated that grazing will be in accordance with a 1996 Rangeland Agreement.

Present management objectives outlined in the 1996 rangeland agreement are to:

---

<sup>2</sup> Grazing preference was defined as “the total number of animal unit months of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee.” Grazing preference included both active and suspended use. The term was replaced by “permitted use” when the new grazing regulations were issued in 1994.

1. Maintain the average range condition as “good” (rating of 50) or better. Average condition was 56.28 based on the 1994-95 rangeland monitoring studies.
2. Maintain average utilization of key species at or below 50 percent as measured by the Key Forage Plant Method of range utilization.
3. Continue monitoring studies, and make subsequent livestock adjustments based on RMP decisions and the results of monitoring studies.
4. Maintain all existing and future range improvement projects. The responsibility will be the range user’s unless otherwise specified.

The allotment consists of six pastures ranging from 439 acres to 3441 acres in size (see map and Table 1). The pastures include approximately 6000 acres of federal land, 640 acres of state land, and 2300 acres of private land, of which 140 acres is uncontrolled by the permittee (i.e., not owned by the permittee, but not fenced apart from the allotment). Most of the public range is in the North Main, Middle, and River West Pastures.

The BLM currently does not control livestock numbers in the River East Pasture, though it has 142 acres of public range. A 640-acre, fenced, private pasture located in the center of the allotment is not owned by the permittee or included as part of the grazing allotment.

Generally, the current livestock management practice used by the permittee is a simple rotation scheme, with most of the herding activity conducted from the east side of the river. Livestock are run in three herds. The uplands in North Main, South Main and Middle pastures are grazed during the winter months of November through February. Livestock are then moved to the bottomland in River East and River West pastures and remain there during the spring and summer months of March through October. The Private Pasture (uncontrolled lands) may be grazed along with South Main Pasture.

Livestock grazing is currently spread between Middle and River East Pastures due to the lack of water in Middle Pasture. The original source of water in Middle Pasture was a windmill on private lands not belonging to permittee. It was cut off from livestock use when the private land was fenced apart from the allotment (Private Pasture). Since then, the fence separating River East Pasture and Middle Pasture has not been maintained. The farmlands in River East Pasture are not being irrigated at this time. Whiskey Pasture is used as a trap for heifers.

<b>Table 1. Summary of Allotment Pastures</b>		
<b>Pasture Name</b>	<b>Acres</b>	<b>Pasture Description</b>
North Main	344 1	Uplands, breaks, bottomlands dissected by Bosque Draw; mainly BLM
South Main	144 0	Uplands; one section state & one section BLM land; small amount private
Middle	550	Bottomland just north of Cottonwood Draw; predominantly BLM land
Whiskey	439	Cottonwood Draw on north side of pasture; predominantly private land
River East	710	Floodplain east of the Pecos River; predominantly private land
River West	306 8	Floodplain and low terraces west of river; mixed BLM and private land
Allotment Total	964 8	
Private Pasture	640	Private inholding in the center of Allotment 65020, but not part of it (uncontrolled lands)

The allotment was placed in the “I” Category in 1982 based on rangeland monitoring studies established by the BLM. Generally, an I-category designation indicates that improvement is needed because the allotment: (1) has a potential significant resource conflict, (2) has high potential for improvement in forage production and is in less than satisfactory condition, or (3) is in less than satisfactory condition and in a static or declining range trend.

As shown by the data collected from 1981 through 1995, ecological condition ratings reflect an upward trend from 44 to 56 (BLM 1998). The allotment would remain in the “I” Category because it is in less than satisfactory condition. It would also allow for potential range and wildlife projects in the future, and would point to riparian-wetland resource concerns.

Range improvements for the management of livestock include several earthen tanks, two windmills, and drinking troughs with associated pipelines, pasture and boundary fences, and corrals. Several water developments and fencelines identified on the official grazing allotment maps are no longer functional since specific improvements may have been built 60 years ago and longer. The majority of the range improvements are privately owned. Headquarters Well is the most dependable base water on the allotment, qualifying the

permittee for livestock grazing privileges on public lands under the Taylor Grazing Act. The Pecos River is not designated as a base water for the allotment.

Vegetation treatments were prescribed in the 1986 CMP. A broom snakeweed control project involving about 1661 acres in North Main Pasture was conducted in 1987 by the BLM. Bosque Draw was excluded from the treatment. The control of broom snakeweed and response of grasses and other vegetation resulting from the treatment were favorable.

Rayless goldenrod, a deciduous half-shrub that is poisonous to cattle during the dormant season (first frost to greenup), is found in scattered areas in the bottomlands. Typically, livestock operators will remove cattle during this time to prevent poisoning. In this particular case, the operator grazes cattle during the dormant season with apparently no significant losses.

River West Pasture was incorporated into the allotment in 1994. Prior to the addition of this pasture, a new fence was constructed by the permittee between River West Pasture and North Main Pasture. An interior pasture fence on the west side of the river is down in several areas, therefore, River West Pasture is effectively one large riparian pasture taking in both sides of the river. Cattle depend heavily on the Pecos River as a water source, and the riparian area for forage during dry periods when it is unavailable in the uplands. Cattle are naturally drawn to the bottomlands because of the availability of food, water, and shade. Management of livestock in River West Pasture is affected by the size of the pasture, dense saltcedar stands, and lack of water in the uplands. Cattle continue to congregate in the bottomlands of the pasture. In addition, cattle can move off the allotment along the river because it is difficult to maintain water gaps (i.e., fences across the river) during flooding events.

Private farmlands in River East Pasture would be incorporated into the grazing scheme, though they have not been irrigated for a number of years. Fields total about 134 acres with 100 acres planned for future cultivation of Matua, a cool season perennial brome grass. Matua can be grazed in early spring, and late fall/winter. The farmlands would provide forage for weaning calves, replacement heifers in the spring, fattening low body weight cattle, and other livestock during periods of drought. The 142 acres of public land in River East Pasture is uncontrolled to allow for livestock numbers to be run as needed within the entire pasture.

### Environmental Impacts

Under the Proposed Action, livestock would continue to graze public lands within the allotment under a grazing scheme implemented by the permittee. This is generally to graze the bottomlands during the summer months and the uplands during the winter months. Livestock grazing pressure would continue in the riparian area in River West Pasture due to the size of the pasture, dense saltcedar stands, lack of water sources on the uplands, and the difficulty of managing herds from the east side of the river. Forage utilization on the uplands would remain low because cattle would continue to congregate in the

bottomlands. Existing pasture configurations and water developments would remain the same and would limit grazing management flexibility and might hinder implementation of a rest-rotation system. Some pasture fences, particularly along the river, are in disrepair and would continue to limit the control of livestock. The 142 acres of public lands in River East Pasture would remain without livestock number control by the BLM.

Under Alternative B, livestock management would be more intense as a rest-rotation grazing scheme would be implemented. Pasture configurations could be changed and would require an evaluation of existing fences for abandonment or reconstruction. New fences and water developments would be proposed for construction. Overall, livestock utilization would be more evenly spread throughout the allotment and would afford rest to the riparian area. Vegetation treatments would be proposed, and livestock would be deferred from these pastures as specified in the project proposal. The 142 acres of public lands in River East Pasture would be incorporated into the rotation system for the allotment.

Under Alternative C, there would be no livestock grazing authorized on public lands. The public lands would have to be fenced apart from the private lands or livestock would be considered in trespass if found grazing on public lands (43 CFR 4140.1(b)(1)). The expense of fencing would be borne by the private landowner. Range improvements on public land might not be maintained.

Cumulative impacts of the grazing and no grazing alternatives were analyzed in *Rangeland Reform '94 Draft Environmental Impact Statement (BLM and USDA Forest Service 1994)* and in the *Roswell Resource Area Draft RMP/EIS (BLM 1994)*. The no livestock grazing alternative was not selected in either document.

## **2. Vegetation**

### Affected Environment

Allotment 65020 is comprised of several vegetation community types arranged in a mosaic over the allotment: (1) Grassland; (2) Mixed Desert Shrub; (3) Drainages, Draws and Canyons( DDC); and (4) Riparian/Wetland. The allotment is characterized as a riparian allotment because of its proximity to the Pecos River. Riparian vegetation, primarily found within the floodplain of the river, is discussed in the Riparian/Wetland section of this environmental assessment.

Grasslands are intermixed with all community types. Alkali sacaton is common in the bottomlands, and is interspersed with saltcedar and cottonwood within the floodplain. Tobosa and burrograss occur in the bottoms of draws and swales. Upland habitat of the allotment can be characterized as a mesquite-dominated grassland since mesquite has become a major component of the vegetative community.

The Mixed Desert Shrub community is found on the uplands and rough breaks above the

bottomlands. Black grama and dropseed constitute the primary grass species, and other plants of the Chihuahuan desert biome are represented.

The DDC community is comprised of the major drainages crossing the allotment. The largest drainages are Bosque Draw and Cottonwood Draw that enter the river from the east. Numerous smaller drainages are found on both sides of the river that make up the breaks between the upland and bottomland. Vegetation within the large drainages support scattered cottonwood, saltcedar and mesquite. The breaks support characteristic mixed-desert-shrub species such as indigo bush, yucca, fourwing saltbush and mesquite.

Rangeland monitoring studies have been established in key areas within the allotment. The areas contain both black grama and dropseeds, the two key forage species. Utilization, production, and climatic studies are conducted by BLM specialists. Trend and ecological condition are determined from monitoring data collected every five years. Information about actual use is provided by the permittee, and includes the number of cattle, period of use, and pastures grazed. Utilization, production, and climatic studies are conducted by BLM specialists. Range condition for the pastures in 1995 are shown in Table 2. Refer to the Soils section for additional information on range sites.

<b>Table 2. 1995 Range Condition By Pasture</b>	
<b>Pasture</b>	<b>Rating<sup>3</sup></b>
North Main	47
Whiskey	75
River East	53
Middle	63
River West	43

General objectives or guidelines for each vegetation community (except for riparian/wetlands) are described in the Roswell Approved RMP and Record of Decision (BLM 1997) and the Roswell Draft RMP/EIS (BLM 1994). Vegetation resource objectives are described in terms of percent cover and cover by percent composition and are summarized in Table 3.

---

<sup>3</sup> The rating is the percentage of the plant community that is climax for the range site at the time of monitoring.

<b>Table 3. General Vegetative Community Objectives</b> (Monitoring Data Averages from 1982-92)						
Component	Grassland		Mixed Desert Shrub		Drainages-Draws-Canyons	
	Percent Cover	Vegetative Cover by Percent Composition	Percent Cover	Vegetative Cover by Percent Composition	Percent Cover	Vegetative Cover by Percent Composition
Grasses	<b>15 - 52</b> (13)	<b>30 - 85</b> (82)	<b>11 - 28</b> (7)	<b>55 - 75</b> (67)	<b>15 - 45</b> (22)	--
Forbs		<b>10 - 15</b> (2)		<b>10 - 20</b> (1)		--
Shrubs	<b>3 - 12</b> (4)	<b>1 - 10</b> (16)	<b>6 - 15</b> (10)	<b>15 - 20</b> (31)	<b>3 - 20</b> (13)	--
Trees		--		<b>1 - 10</b> (<1)		--
Bare Ground	<b>14 - 60</b> (64)	--	<b>10 - 40</b> (71)	--	<b>0 - 60</b> (42)	--
Small/Large Rock	<b>0 - 30</b> (<1)	--	<b>15 - 35</b> (<1)	--	<b>0 - 40</b> (0)	--
Litter	<b>8 - 44</b> (19)	--	<b>1 - 12</b> (12)	--	<b>4 - 43</b> (23)	--

The data in Table 3 indicate a high percentage of bare ground for the Grassland and Mixed Desert Shrub communities. Conversely, the grass and forb components are low. The shrub composition is also high for both communities. This is attributable, in part, to mesquite invasion of the Grassland and Mixed Desert Shrub communities.

### Environmental Impacts

Under the Proposed Action, vegetation would continue to be grazed and trampled by livestock, primarily those species preferred as forage. Annual, seasonal impacts to bottomland plant species would continue because livestock prefer the riparian areas. Generally, the Grassland community in the uplands would be lightly grazed due to the preference of the bottomlands by livestock. The Mixed Desert Shrub and the Drainages-Draws-Canyons vegetation communities would reflect slight vegetation use because primary forage species are not well represented in these drier areas. Ecological trend on upland sites would remain static or show slight improvement at the existing permit level. Bottomland vegetation in the 142 acres of public lands in River East Pasture would receive annual, seasonal use by uncontrolled livestock numbers, and preferred forage species would decrease in composition over the long term.

Under Alternative B, vegetation would continue to be grazed and trampled by livestock, but

with less impact to bottomland vegetation. In the short term, upland vegetation use would increase in certain pastures following implementation of a rest-rotation system, but would then receive a growing season or longer rest period. A long-term upward trend in ecological condition for all community types is expected from implementation of a rest-rotation system, used in conjunction with proposed vegetation treatments. These efforts should increase the amount of ground cover in the long term, helping to meet the vegetation objectives outlined in Table 3.

The 142 acres of public land in the River East Pasture would remain uncontrolled. It is expected that the lands would receive seasonal rest from implementation of a rest-rotation grazing system. The additional forage produced on irrigated farmlands should relieve grazing pressure from the rest of the pasture. The combination would reduce grazing impacts to vegetation, if managed properly.

Under Alternative C, no impacts to vegetation resources would occur on public lands from authorized livestock grazing. Vegetation cover would increase over the long term in some areas. Grasslands in the uplands would increase in cover and composition in the long term, but composition would be tempered by mesquite dominating the shrub component. Alkali sacaton in the bottomlands would increase in cover and composition over the short term, but would become decadent in the long term without livestock removing standing vegetation. Alkali sacaton composition would also be tempered by saltcedar dominating certain areas of the bottomlands.

### **3. Soils**

#### Affected Environment

The *Soil Survey of Chaves County, New Mexico, Northern Part (USDA Soil Conservation Service 1983)* was used to describe and analyze impacts to soils. Soils on the allotment are divided between two general map units: (1) Glendale-Ustifluvents-Harkey soils on the floodplains of the Pecos River, and (2) Sotim-Simona-Pajarito soils on high terraces and alluvial side slopes.

Soils are derived primarily from calcareous alluvium, though other types of alluvium, residuum and eolian deposits are present. Textures of the surface layers range from loamy sand on terraces west of the river, to clay loam on parts of the floodplain. Most of the soils are deep and well-drained.

The soil survey indicates a moderate-to-high hazard of water erosion on the river floodplain and some terrace soils above the draws. Elsewhere, the water erosion hazard is slight to moderate. The soil properties also make them susceptible to wind erosion on the entire allotment.

Soil types are an important factor in the development of range sites which describe the vegetation site potential. Range site descriptions used in this analysis are from the Soil

Conservation Service Technical Guides for New Mexico. The allotment is comprised of three range sites, which grade into one another over the landscape in a mosaic pattern. Table 4 depicts the primary range site for each pasture, and the percentage of the allotment that it comprises.

<b>Table 4. Summary of Range Sites</b>		
Site Name	Percent	Pasture Name
Sandy SD-3	60	North Main, South Main & Whiskey
Bottomland SD-3	34	River East & River West
Gravelly SD-3	6	Middle

### Environmental Impacts

Under either the Proposed Action or Alternative B, livestock would remove some of the cover of standing vegetation and litter, and compact the soil by trampling. If livestock management is inadequate, these effects could be severe enough to reduce infiltration rates and increase runoff, leading to greater water erosion and soil losses (Moore et al. 1979, Stoddart et al. 1975). Producing forage and protecting the soil from further erosion would then be more difficult. The impacts of removing vegetation and trampling would be greatest in areas of concentrated livestock use, such as trails, waters, feeders, and shade.

Soils on the allotment are also highly vulnerable to wind erosion. Removal of the vegetative cover increases the exposure of soils to the erosive force of wind. Rangeland monitoring would help ensure an adequate vegetative cover to protect soils from wind erosion by indicating when and where changes are needed to livestock management.

Under the No-Grazing Alternative, any risk of overgrazing would be eliminated. However, removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

Cumulative effects on soils from grazing on Allotment 65020 are not expected to be significant under any of the alternatives. The types of effects considered are soil losses and sedimentation of the river.

Moore et al. (1979) explain that the best way to prevent erosion and to enhance productivity of soils is to maintain an adequate vegetative cover. Under the Proposed Action or Alternative B, ongoing vegetation monitoring would help ensure that cover is maintained or improved over time. If future monitoring shows cover to be inadequate due to livestock management, changes would be made to promote improved plant growth.

#### **4. Water Quality**

##### Affected Environment - Surface Water

The allotment straddles approximately 4.5 miles of the Pecos River. Bosque Draw and Cottonwood Draw drain to the river from the east, and numerous small draws drain from the west. This portion of the river is in the reach from Salt Creek to Sumner Dam, which is identified as Segment 2207 by the New Mexico Water Quality Control Commission (WQCC).

Under the authority of the federal Clean Water Act, the WQCC (1995) designated uses for streams in New Mexico. Designated uses for Segment 2207 include fish culture, irrigation, a limited warmwater fishery, livestock watering, wildlife habitat, and secondary contact (e.g., wading).

The WQCC (1995) also established water quality standards to protect the designated uses, and directs periodic water quality assessments to ensure that standards are met. According to the New Mexico Environment Department (NMED), Segment 2207 is currently meeting the standards for all its designated uses (Hogge 1998, NMED 1998a).

##### Environmental Impacts - Surface Water

In general, livestock grazing is considered a potential cause of nonpoint source pollution, with sediment as the primary contaminant. Livestock grazing on the allotment, however, not expected to be significant cause of sediment loading to the Pecos River under any management alternative.

The NMED conducted an intensive assessment of Pecos River water quality in 1997. They concluded that no water quality standards have been exceeded in the past ten years on Segment 2207 (NMED 1998a).

The NMED assessment also considered siltation and stream bottom deposits in evaluating impacts to the threatened Pecos bluntnose shiner and its habitat. The NMED cites a letter from the U.S. Fish and Wildlife Service (USFWS) that sediment conditions alone are not significant contributing factors in the ability of the bluntnose shiner to survive and reproduce. Instead, upriver reservoirs have trapped sediment and resulted in water exiting the reservoirs that is “starved of sediment.” Therefore, sediment loading due to livestock grazing on the allotment would not be expected to significantly affect water quality under any alternative.

Bacteria and nutrients are other potential contaminants that can be related to livestock grazing. A review of historic water-quality data did not show any evidence of bacteria contamination of the river, but elevated levels of ammonia were noted during sampling in 1986 (NMED 1998a). The level was still below the chronic standard for ammonia established by the state. The Roswell wastewater treatment plant was discharging during sampling, and is believed to have been the principal contributor to the elevated levels of ammonia. Bitter Lake National Wildlife Refuge was also mentioned by the NMED as a possible contributor. Because no water quality standards have been exceeded in more than ten years, livestock grazing on the allotment does not appear to have a significant impact on water quality.

Cumulative impacts to Pecos River water quality from grazing on Allotment 65020 would not be expected to be significant. The intensive assessment of the Pecos River by the NMED also included Segment 2206 (Salt Creek to Rio Peñasco) immediately downstream of Segment 2207. Potential sources of pollutants in Segments 2206 and 2207 include rangelands, irrigation return flows, dairies, municipal and industrial sources, mineral development, and road construction and maintenance. Even considering all these potential pollution sources, neither segment had a documented exceedance of any water quality standard.

#### Affected Environment - Ground Water

The allotment lies on the northern legal boundary of the Roswell Underground Water Basin (New Mexico State Engineer 1995). The portion in Township 7 South lies in the basin, but the majority of the allotment in Township 6 South lies north of the basin.

Ground water is found in the alluvial aquifer at depths ranging from less than 10 feet near the river, to more than 65 feet in the uplands (Wilkins and Garcia 1995, Hudson and Borton 1983). Yields of 100 gallons per minute or more are possible from the alluvium (Geohydrology Associates, Inc. 1978). Ground-water quality is generally good, though data are limited.

#### Environmental Impacts - Ground Water

Livestock grazing would not be expected to have a significant impact on ground-water quality. Livestock would be dispersed over the allotment, and the soil would filter potential contaminants.

The WQCC has the primary responsibility for ground-water quality management in New Mexico. In their most recent report on water quality in New Mexico, the WQCC (1996) did not find livestock grazing on rangelands to be an important potential source of contamination to ground water.

Wilson (1981) also presented potential sources of ground-water contamination and the relative vulnerability of aquifers in New Mexico. He identified animal confinement facilities

(e.g., dairies, feedlots) as potential sources of contamination elsewhere in New Mexico, including areas in the Pecos valley downstream from the allotment. Wilson did not identify livestock grazing on rangelands, however, as an important potential source of ground-water contamination.

Cumulative impacts to ground-water quality from grazing on Allotment 65020 would be negligible. Grazing impacts would be insignificant when compared to other potential sources of contamination, such as mineral development, saline intrusion, and agriculture.

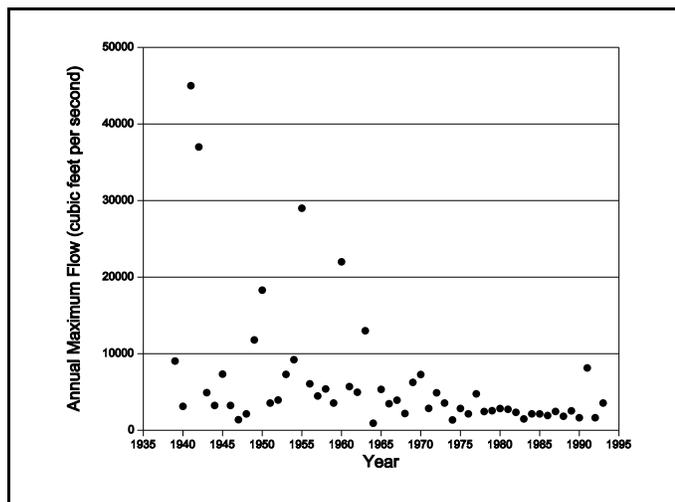
## 5. Floodplains

### Affected Environment

The properties of any stream or river are due to the interaction of its channel geometry, streamflows, sediment load, channel materials, and valley characteristics (Rosgen 1996). The form and fluvial processes of the Pecos River have been modified by the construction of dams, which have drastically altered the streamflow and sediment regimes of the river. Flooding is less frequent and less severe than prior to dam construction, and sediment loads have been greatly reduced (see Figure 1). As a result, the channel has become moderately entrenched, and exhibits much less lateral migration.

Flow regulation with the dams has also changed the extent, character, and condition of the riparian area on the river (Durkin et al. 1994). Sediment deposition on floodplains is important for riparian succession, and seasonal flooding is required for obligate riparian vegetation.

For administrative purposes, the 100-year floodplain provides the basis for floodplain management on public lands. It is based on Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (1983). The 100-year floodplain of the Pecos River covers approximately 1880 acres on Allotment 65020, including 640 acres of BLM land and 1240 acres of private land. Floodplains are absent in the deep draws draining to the river. Current development on the floodplain consists of about five miles of roads, eight producing gas wells, and seven miles of fence within the allotment.



**Figure 1.** Annual maximum flow at USGS gage at Acme, New Mexico (08386000) for period 1939-1993. In the 25-year period 1939-1963, an annual maximum flow of 8000 cfs was exceeded nine times. In the 30-year period 1964-1993, 8000 cfs was exceeded only once (1991).

## Environmental Impacts

The reduction in the frequency and magnitude of peak flows on the river would continue to be the primary influence on floodplain function. Whether or not grazing is authorized would have little additional influence.

There would be little change to the level of development on the Pecos floodplain under the Proposed Action or Alternative B. Roads and fences would continue to be used and maintained. Development unrelated to livestock grazing (e.g., natural gas production) would be unaffected.

Under the No-Grazing Alternative, some roads could be abandoned and fences removed. Vegetation cover and diversity would probably increase somewhat. Localized impacts, such as cow trails, may revegetate over time.

Livestock grazing under the Proposed Action or Alternative B would not add to cumulative effects to the floodplain beyond the current level of development. The No-Grazing Alternative could slightly improve floodplain function because vegetation cover would increase, and some roads and fences might be removed or abandoned. The expected improvement would not be significant because current impacts are minor compared to all other impacts to the floodplain (e.g., manipulation of water flows).

## **6. Riparian/Wetland Areas**

### Affected Environment

Riparian areas are found along the 4.5 miles of the Pecos River on the allotment, primarily in the River West Pasture. Floodplain width ranges from about one-half mile to one mile on the allotment. The riparian vegetation community is tied to landform within the floodplain and is influenced by flooding intervals. The land form is comprised of exposed and stabilized river bars, the floodplain, and terraces.

The river channel is moderately entrenched and slightly confined by the valley. Channel banks are relatively stable, but are actively being cut in some locations. This is most likely due to entrenchment of the channel rather than disturbance associated with land use activities. The channel material is primarily a sand/silt bed with small to medium debris. The stream gradient is relatively flat (0.25 percent).

Riparian vegetation along the river banks include pockets of Baltic rush, threesquare and cattail. Woody vegetation within the lower floodplain include seepwillow, coyote willow, saltcedar, and Russian olive. Alkali sacaton, alkali muhly, and inland saltgrass are the most common grass species. Common forb species include goldenrod, ragweed, Douglas rabbitbrush, prairie sunflower, and white sweetclover. Older cottonwood trees can be found in several areas and typically occur on higher elevation sandbars and terraces above the active floodplain.

About 100 acres within the floodplain of the river is dominated by saltcedar growing in patches, strips, or dense thickets. About 48 acres support cottonwood trees with open canopies. Adjacent upland vegetation is mesquite/alkali sacaton shrubland which is encroaching into the floodplain.

In 1992, the BLM initiated a standard method to assess the functioning condition of riparian areas (BLM 1993). The method uses an interdisciplinary team to consider the interaction of the vegetation, landform/soils, and hydrology. Assessed areas can be classified as "proper functioning condition, functional at risk (upward or downward trend) or nonfunctional."

Riparian areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks 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 a result of an interaction among geology, soil, water, and vegetation (BLM 1993).

In June 1998, a BLM interdisciplinary team assessed the riparian area on the allotment (see Appendix 1). The riparian area on public land was in "proper functioning condition" as defined by the BLM (1993). Livestock were grazing the riparian area during the BLM assessment, and cow trailing and reductions in riparian vegetation were observed in limited areas. Plants, such as willows, were heavily browsed or trampled in spots.

Proper functioning condition was designed to be a quick, qualitative assessment of riparian health. However, it should not be construed as the sole measure of riparian health. Evaluating other resource values, such as watershed condition or wildlife habitat could require more detailed monitoring techniques. For example, quantitative assessments of riparian vegetation and community structure are needed to assess habitat quality for any given wildlife habitat component (e.g., browse condition for mule deer, ground cover for ground-nesting species).

### Environmental Impacts

Under the Proposed Action, livestock utilization of the floodplain and associated riparian areas along the Pecos River would continue on the allotment. The greatest vegetation impacts would occur at livestock concentration areas such as crossings, shaded areas along the river, and accessible banks and terraces. Some bank sloughing may occur from trampling. Regeneration of cottonwood trees would be hindered by livestock browsing on seedlings. Utilization of grass species such as alkali sacaton would be heavy within the floodplain and along the river due to annual, seasonal use of the area. The lack of pasture rest would also result in decreased vigor of native riparian vegetation and an increase in

exotic species in the long term.

Under Alternative B, livestock grazing would continue to be used as a tool to improve plant vigor. The floodplain and associated riparian vegetation would be afforded protection from overutilization by livestock, thus improving the health of the floodplain and riparian community. Alleviating grazing pressure would enhance ground cover and help establish preferred plant species, making habitat improvement projects more successful. Seasonal rest would improve vigor of riparian species and would allow for cottonwood regeneration. Reducing exotic species and seasonally grazing along the river would improve the overall health of the floodplain and riparian areas.

Under Alternative C, vegetation condition within the floodplain would moderately improve and riparian vegetation would greatly improve. Improvement would continue to be limited by reductions in flood flows, and existing exotic species that affect plant composition. Grasses would initially increase, but plant vigor could decline from lack of vegetation removal, making ground cover species rank. Since livestock grazing would not be permitted under Alternative C, range improvement projects such as brush control and exotic species control would be less likely to be implemented through the range program.

## **7. Wildlife**

### Affected Environment

The allotment provides a variety of habitat types for terrestrial and aquatic wildlife species. The diversity and abundance of wildlife species in the area is due to the presence of open water, the numerous drainages interconnecting upland habitats to the Pecos floodplain, a mixture of grassland habitat and mixed desert shrub vegetation, and riparian vegetation found within the floodplain of the river.

Numerous avian species use the Pecos River during spring and fall migration, including nongame migratory birds. The Bitter Lake National Wildlife Refuge (BLNWR) is several miles downstream from the allotment, and serves as a major focal point for migratory birds (e.g., ducks, geese, cranes, waterbirds). Common bird species are mourning dove, mockingbird, white-crowned sparrow, black-throated sparrow, blue grosbeak, northern oriole, western meadowlark, Crissal thrasher, western kingbird, northern flicker, common nighthawk, loggerhead shrike, and roadrunner. Raptors include northern harrier, Swainson's hawk, American kestrel, and occasionally golden eagle and ferruginous hawk.

The Pecos River once supported a wide variety of native fish species adapted to the flow regime that existed prior to dam construction, agriculture development, and the introduction of non-native fish species. The greatest impact to fish habitat is the manipulation of water supply to meet irrigation needs. Representative fish species include the red shiner, sand shiner, Arkansas River shiner, Pecos bluntnose shiner, plains minnow, silvery minnow, plains killifish, mosquitofish, speckled chub, river carpsucker and channel

catfish.

Common mammal species using the area include mule deer, coyote, gray fox, bobcat, striped skunk, porcupine, racoon, badger, jackrabbit, cottontail, white-footed mouse, deer mouse, grasshopper mouse, kangaroo rat, spotted ground squirrel, and woodrat. Beaver activity can occasionally be observed in the area.

A variety of herptiles also occur in the area such as yellow mud turtle, box turtle, eastern fence lizard, side-blotched lizard, homed lizard, whiptail, hognose snake, coachwhip, gopher snake, rattlesnake, and spadefoot toad.

### Environmental Impacts

Under the Proposed Action, livestock grazing, if not properly managed, could impact wildlife habitat if vegetation that provides forage, browse, and cover for a variety of wildlife species is overutilized. Continuing current grazing practices would produce a gradual decline in wildlife and habitat diversity. The emphasis on forage production for livestock may not reflect prevailing wildlife habitat management concerns, and could result in potential long-term negative impacts to wildlife habitat.

Under Alternative B, livestock grazing management and range improvement projects designed with consideration for wildlife would generally enhance the quality of wildlife habitat. Vegetation condition, forage production, and habitat diversity would improve, and wildlife species distribution and abundance would increase. The construction of livestock waters in some areas would promote increased wildlife distribution and abundance, but may increase grazing pressure in those same areas. Short-term impacts of range improvements would be the temporary displacement of wildlife species during the construction activities.

Under Alternative C, wildlife habitat would moderately improve. Livestock would no longer compete directly with wildlife for forage, browse, and cover. Improvement would continue to be limited by invasive species (e.g., mesquite, snakeweed), which affect plant composition. Since livestock grazing would not be permitted under Alternative C, range improvement projects that benefit wildlife, such as water developments, would be abandoned. New range improvement projects that would also improve wildlife habitat, such as brush control, may not be implemented because these projects are primarily driven and funded through the range program.

## **8. Threatened and Endangered Species**

The Pecos bluntnose shiner, Pecos gambusia, and interior least tern are federally listed species that occur or have the potential to occur on the allotment. Federally proposed species include the Pecos pupfish and Pecos sunflower. The status and presence of these species in the RFO area are discussed in the following section.

## **Pecos Bluntnose Shiner (*Notropis simus pecosensis*) - Federal Threatened**

### Affected Environment

Historically, the Pecos bluntnose shiner inhabited the Pecos River from Santa Rosa to near Carlsbad, New Mexico. Currently, the subspecies is restricted to the river from the Fort Sumner area southward locally to the vicinity of Artesia, and seasonally in Brantley Reservoir (NMDGF 1988; USFWS 1992). Routine fish community monitoring conducted by the USFWS in the Pecos River between Sumner Dam and Brantley Reservoir show the fish remains generally abundant, especially in light of cooperative efforts between the Bureau of Reclamation and the USFWS to more closely mimic natural flows in the Pecos River.

There are two designated critical habitat areas on the Pecos River within the RFO area. The first is a 64-mile reach beginning about ten miles south of Fort Sumner (Township 1 North), downstream to a point about twelve miles south of the DeBaca/Chaves county line (Township 5 South). The second reach is from Highway 31 east of Hagerman (Township 14 South), south to Highway 82 east of Artesia (Township 17 South).

The primary threat to the Pecos bluntnose shiner appears to be the manipulation of flows in the Pecos River to meet irrigation needs, and the subsequent drying of the river channel (Hatch et al. 1985). High flows in late winter-early spring before natural spring runoff appear to displace fish into marginal downstream habitats, including Brantley Reservoir. Cessation of reservoir releases after spring runoff and before the advent of summer rains desiccates long stretches of the Pecos River. Maintenance of water levels within the Pecos River and its tributaries is beyond the management authority of the BLM.

In addition to the manipulation of flows is the threat posed by non-native fish. The introduction and establishment of species such as the Arkansas River shiner offers direct competition with the Pecos bluntnose shiner.

Livestock grazing does not appear to be a threat to the bluntnose shiner based on a review of the literature. Nor was grazing identified in the Pecos Bluntnose Shiner Recovery Plan as having the potential to adversely affect water quality, and thus the bluntnose shiner (USFWS 1992).

### Environmental Impacts

Under the Proposed Action or Alternative B, livestock grazing impacts to the Pecos bluntnose shiner would be negligible. Under Alternative C, no impacts from livestock grazing would occur. Based on the assessment of Pecos River water quality conducted by the NMED in 1997, it appears that the shiner would not be affected by poor water quality if a grazing permit were issued.

Section 303(d) of the federal Clean Water Act requires that the State identify those waters for which existing required pollution controls are not stringent enough to meet State water quality control standards. The State must then establish total maximum daily loads (TMDLs) for pollutants of these water-quality-limited stream segments.<sup>4</sup> The presence of critical habitat for the threatened Pecos bluntnose shiner raised the Pecos River to a priority one on the New Mexico 303(d) ranking system.

Segment 2207 (Pecos River from Salt Creek to Sumner Dam) had been listed for TMDL development because of stream bottom deposits. Based on a review of historical data and their survey, however, the NMED (1998a) concluded there was no basis for developing TMDLs on Segment 2207. The NMED (1998b) removed the segment of the Pecos River from the 1998-2000 303(d) list.

NMED's decision to remove Segment 2207 from the 303(d) list bears directly on the Biological Opinion rendered by the USFWS on the Roswell Resource Management Plan. The USFWS cited the New Mexico Water Quality Control Commission's 305(b) report in their opinion. The report identified siltation, reduction of riparian vegetation, and streambank destabilization as among the probable causes for the Pecos River in the RFO area not supporting its designated use as a warm water fishery, and identified rangeland agriculture as a probable source of the nonsupport. Just as Segment 2207 was removed from the 303(d), the next 305(b) report will no longer list the segment as water quality-limited (Hogge 1998).

### **Pecos Gambusia (*Gambusia nobilis*) - Federal Endangered**

#### Affected Environment

The Pecos gambusia is endemic to the Pecos River Basin in southeastern New Mexico and western Texas. Historically, the species occurred as far north as the Pecos River near Fort Sumner, and south to Fort Stockton, Texas.

Recent records indicate, however, that its native range is restricted to sinkholes and springs and their outflows on the west side of the Pecos River in Chaves County. In spite of population declines, the species remains locally common in a few areas of suitable habitat. The BLNWR and the Salt Creek Wilderness Area contain the key habitat of the species in the RFO area. On the refuge, the gambusia is primarily restricted to springs and sinkholes in the Lake St. Francis Research Natural Area.

---

<sup>4</sup> The TMDL is defined as "the greatest loading or amount of the pollutant that may be introduced into a watercourse or stream reach from all sources without resulting in a violation of water quality standards."

Endangerment factors include the loss or alteration of habitat (e.g., periodic dewatering) and introduction of exotic fish species (e.g., mosquitofish). Potential impacts to habitat may also occur from surface disturbing activities at sinkholes or springs and their outflows.

#### Environmental Impacts

No impacts to the Pecos gambusia would result from livestock grazing under any Alternative. No springs or seeps exist on BLM land within the allotment that would provide yearlong habitat for the gambusia.

#### **Interior Least Tern (*Sterna antillarum athalassos*) - Federal Endangered**

##### Affected Environment

The interior least tern nests on shorelines and sandbars of streams, rivers, lakes, and man-made water impoundments. Records of breeding terns in New Mexico are centered around BLNWR where the species has bred regularly since it was first recorded in 1949. BLNWR is considered "essential" tern breeding habitat in the state. Besides BLNWR, the only known nesting habitat in the RFO area is an alkali flat due north of the refuge on public lands. These are small populations with only a few nesting terns.

Specific surveys for nesting least terns have been conducted in potential habitat along the Pecos River and playas by the New Mexico Natural Heritage Program under a Challenge Cost Share project. No other nesting terns have been found to date.

Sporadic observations of least terns have been recorded elsewhere in the Pecos River valley. The tern may occur on public lands in Chaves County along the river because suitable nesting habitat is found on sites that are sandy and relatively free of vegetation (i.e., alkali flats). Approximately 44 potential nesting sites are found throughout the RFO area. Other potential habitat sites are saline, alkaline, or gypsiferous playas that occasionally hold water. However, ephemeral playas do not support fish, the main staple for terns.

#### Environmental Impacts

No impacts to the interior least tern would result from livestock grazing under any Alternative. Recent habitat surveys found no breeding populations in potential nesting habitat that occurs as sand bars within the river channel.

#### **Pecos Pupfish (*Cyprinodon pecosensis*) - Federal Proposed**

##### Affected Environment

The Pecos pupfish is found in a variety of habitats from saline springs and gypsum sinkholes to desert streams with highly fluctuating conditions. Pecos pupfish populations

are most dense in gypsum sinkholes on BLNWR. The species apparently thrives in these saline waters that support few other fish species. It occasionally occupies fresher waters in the Pecos River, but is uncommon in such habitats. In the river, the pupfish is most often found in backwater areas and side pools that lack sunfish or other predators (NMDGF 1988; Sublette et al. 1990; NMDGF 1997). The pupfish also inhabits the Overflow Wetlands Wildlife Habitat Area adjacent to the Bottomless Lakes State Park.

Endangerment factors include habitat loss caused by groundwater pumping and channel alterations, hybridization and/or replacement by the sheepshead minnow, and predation by non-native fish species. Potential impacts to habitat may occur from surface disturbing activities at or near springs or seeps. Other activities that severely impact habitat are not within the purview of the BLM, such as transportation and utilization of water associated with agricultural irrigation. Livestock grazing may impact springs or seeps but most of these sites have been protected with exclosures.

### Environmental Impacts

Under the Proposed Action or Alternative B, livestock grazing impacts to the Pecos pupfish would be negligible. Under Alternative C, no impacts from livestock grazing would occur. Conclusions regarding riverine habitat are based on the same information used for the Pecos bluntnose shiner. Suitable sinkhole or spring habitat does not exist on the allotment.

### **Pecos (Puzzle) Sunflower** (*Helianthus paradoxus*) - Federal Proposed

#### Affected Environment

The Pecos sunflower is found along alkaline seeps and cienegas of semi-desert grasslands and short-grass plains (4,000-7,500 ft.). Plant populations are found both in water and where the water table is near the ground surface.

In the RFO area, the sunflower is found in only a few areas outside of the BLNWR. In 1994, a new population was found growing on the margins of Lea Lake and its outflow at Bottomless Lakes State Park. Lloyd's Draw, east of the Pecos River, has the only known Pecos sunflower population on BLM land, which became evident following a prescribed fire. Potential habitat also occurs on BLM land within the Overflow Wetlands Wildlife Habitat Area.

Potential habitat for the sunflower occurs on the allotment as low lying areas where the water table is near the ground surface. The low lying areas are not necessarily along the existing river channel, but in old channel courses and oxbows. These areas are now invaded by saltcedar growing in dense stands, which may prevent the viability of the Pecos sunflower. Other potential sites include a few springs on the east side of the river. No Pecos sunflower populations have been found on the allotment to date. Endangerment factors include dewatering of riparian or wetland areas where the sunflower is found, surface disturbing activities, and excessive livestock grazing.

## Environmental Impacts

Under the Proposed Action and Alternative C, potential habitat would remain in unsuitable condition for the Pecos sunflower due to saltcedar. Under Alternative B, livestock grazing management and associated habitat improvement projects would enhance potential habitat for the sunflower. Populations of the sunflower may become established following saltcedar control in certain areas, if seeds are available in the soil.

## **9. Visual Resources Management**

### Affected Environment

The entire allotment is in a Class III area for visual resources management. In a Class III area, contrasts to the basic elements caused by a management activity may be evident and begin to attract attention in the landscape. The changes, however, should remain subordinate to the existing landscape.

### Environmental Impacts

The basic elements of the landscape would not change within the allotment under any management alternative. Potential impacts to visual resources would be analyzed and mitigated as allotment management activities are proposed in the future.

## **10. Recreation**

### Affected Environment

A network of roads provide access to public, private, and state lands within the allotment, although legal public access is limited. Access to most of the private and state lands is not currently controlled by fences, locked gates, or no-trespass signs. The BLM has designated off-highway vehicle use on public lands in the area as limited to existing roads and trails.

The allotment provides habitat for numerous game species including desert mule deer, mourning dove, and scaled quail. Predator and feral pig hunting may occur on the allotment, as well as trapping for predators or furbearers. The river is also accessible to the public for fishing or minnow seining.

General sightseeing, wildlife viewing, and photography are nonconsumptive recreational activities that may occur. Rock collectors find various minerals unique to the area, such as Pecos diamonds.

### Environmental Impacts

Under the Proposed Action and Alternative B, no direct negative impacts to recreational activities on public lands would occur. Potential conflicts could arise between recreational pursuits and ranching activities, depending on hunting seasons and livestock use in a given pasture. Vandals could damage range improvements.

Under Alternative B, game and non-game wildlife species could realize long-term benefits through the improvement of habitat. It is expected that hunter success and wildlife viewing opportunities would be enhanced.

Under Alternative C, there would be no conflicts with ranching activities and recreational use on public lands. Success of hunts and nonconsumptive opportunities would remain the same or slightly improve. Vandalism could still occur to range improvements.

## **11. Significant Caves and Karst**

### Affected Environment

Allotment 65020 is located in an area of medium potential for the occurrence of caves and karst. Although a comprehensive inventory of cave and karst resources has not been completed for public lands in the RFO, a cave has been reported to be on Allotment 65020. A field check, however, could not verify the existence of a cave.

### Environmental Impacts

Impacts to cave and karst resources are not expected to be significant under any of the alternatives. Though a cave was reported to be on the allotment, its existence could not be confirmed. If the cave exists and was simply missed during the search, significant impacts still would not be expected. The reported cave location would not ordinarily receive heavy livestock use, so grazing authorization on the allotment would probably have little effect even if the cave exists.

It is possible that cave or karst features exist on the allotment, but have not yet been discovered. If a feature is discovered in the future, protective measures could be required to mitigate adverse impacts to the feature. These measures might include fencing, removing structures that affect water movement, closing roads, limiting chemical treatment of vegetation, or other actions.

## **12. Air Quality**

### Affected Environment

The allotment is in a Class II area for the Prevention of Significant Deterioration of air quality as defined by the federal Clean Air Act. Class II areas allow a moderate amount of air quality degradation.

Air quality in the region is generally good, with winds averaging 10-16 miles per hour depending on the season. Peak velocities reach more than 50 miles per hour in the spring. These conditions rapidly disperse air pollutants in the region.

#### Environmental Impacts

Dust levels resulting from allotment management activities would be slightly higher under the Proposed Action or Alternative B than Alternative C. The cumulative impact on air quality from the allotment would be negligible compared to all pollution sources in the region.

### **IV. CUMULATIVE IMPACTS**

A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) 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 analysis of cumulative impacts is driven by major resource issues. The action considered in this environmental assessment (EA) is the authorization of livestock grazing on Allotment 65020, and the major issues include:

- (1) threatened and endangered species associated with the Pecos River, primarily the Pecos bluntnose shiner,
- (2) Pecos River water quality, and
- (3) riparian/wetland habitat within the Pecos River floodplain.

The incremental impact of issuing a grazing permit on these resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments along the Pecos River; oil and gas activities on the river floodplain and on the uplands; rights-of way crossing the river; and recreation use, particularly off-highway vehicles.

All authorized activities which occur on BLM land can also take place on state and private lands. In addition, significant impacts could result from reservoir management and the manipulation of river flows, and agricultural activities (e.g. dairies, crop production, and irrigation diversions and return flows).

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Sumner Dam, the principal structure controlling river flows in this reach, was built in 1937. Major irrigation projects were begun in the 19th century, and oil and gas

activities began in the early part of the 20th century. All these activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

The Proposed Action or Alternative B would not add incrementally to the cumulative impacts to threatened and endangered species, or to Pecos River water quality. The conclusion that impacts to these resources from grazing authorization would not be significant are discussed in detail in Section III of the EA. Incremental impacts to riparian/wetland habitat from livestock grazing are possible, however. Under Alternative B, negative incremental impacts would be expected to be less than under the Proposed Action because the allotment would be more intensively managed. These impacts are also discussed in Section III of the EA.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts to riparian/wetland habitat would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotment would be less intensively managed. For example, alkali sacaton in the bottomlands would likely become decadent without livestock impact, and control of exotic plant species such as saltcedar would be less likely without allotment management.

## **V. MITIGATION MEASURES**

Mitigation measures are actions which could be taken to avoid or reduce impacts likely to result from the Proposed action or Alternatives. The following mitigation measures address possible impacts from livestock grazing under the Proposed Action or Alternative B.

Vegetation monitoring studies and riparian assessments would continue if a new grazing permit were issued under the Proposed Action or Alternative B. Changes to livestock management would be made if monitoring data show that adverse impacts to upland or riparian vegetation are occurring.

It is possible that unforeseen impacts to other resources could occur during the term of the permit. If adverse environmental impacts are observed, action would be taken to mitigate those impacts at that time.

## **VI. RESIDUAL IMPACTS**

Residual impacts are direct, indirect, or cumulative impacts that would remain after applying the mitigation measures. Residual impacts following authorization of livestock grazing would be insignificant if the mitigation measures are properly applied.

## **VII. PERSONS OR AGENCIES CONSULTED**

Chaves County Public Land Use Advisory Committee  
Mr. Thomas Cooper - Permittee  
New Mexico Department of Game and Fish  
New Mexico Energy, Minerals, and Natural Resources Department  
- Forestry and Resource Conservation Division  
New Mexico Environment Department - Surface Water Quality Bureau  
New Mexico State Land Office  
U.S. Fish and Wildlife Service - Ecological Services  
U.S. Fish and Wildlife Service - Fishery Resources Office

## VIII. LITERATURE CITED

- Bureau of Land Management. 1993. Riparian area management TR 1737-9: process for assessing proper functioning condition. BLM/SC/ST-93/003+1737. 60 pp.
- Bureau of Land Management. 1994. Roswell resource area draft resource management plan/environmental impact statement. BLM-NM-PT-94-0009-4410.
- Bureau of Land Management. 1997. Roswell approved resource management plan and record of decision. BLM-NM-PT-98-003-1610. 71 pp.
- Bureau of Land Management and USDA Forest Service. 1994. Rangeland reform '94, draft environmental impact statement.
- Durkin, P. M. Bradley, E. Muldavin, and P. Mehlhop. 1994. A riparian/wetland vegetation community classification of New Mexico: Pecos River basin. Vol. 1. Final Rep. Submitted to New Mex. Environ. Dept. by New Mex. Nat. Heritage Prog. 48 pp.
- Federal Emergency Management Agency. 1983. Flood insurance rate map. Community-Panel No. 350125 0325B.
- Geohydrology Associates, Inc. 1978. Collection of hydrologic data, eastside Roswell range EIS area, New Mexico. Prepared for BLM under Contract No. YA-512-CT7-217. 97 pp.
- Hatch, M.D., W.H. Baltosser, and C.G. Schmidt. 1985. Life history and ecology of the bluntnose shiner (*Notropis simus pecosensis*) in the Pecos River of New Mexico. Southwest Nat. 30:555-562.
- Hogge, David. 1998. Personal communication. New Mex. Env. Dept., Surf. Water Qual. Bur.
- Hudson, J.D. and R.L. Borton. 1983. Ground-water levels in New Mexico, 1978-

1980. Basic Data Report. New Mexico State Engineer. 283 pp.
- Kunkel, K.E. 1984. Temperature and precipitation summaries for selected New Mexico locations. New Mex. Dept. Agric. 190 pp.
- Moore, E., E. Janes, F. Kinsinger, K. Pitney, and J. Sainsbury. 1979. Livestock grazing management and water quality protection - state of the art reference document. EPA 910/9-79-67. Environmental Protection Agency. Seattle, WA. 147 pp.
- New Mexico Department of Game and Fish. 1988. Handbook of species endangered in New Mexico. G-253:1-2. Santa Fe.
- New Mexico Department of Game and Fish. 1997. Biota information system of New Mexico (BISON-M). Version 9/97.
- New Mexico Environment Department. 1998a. Record of decision concerning the development of total daily maximum loads for segments 2206 and 2207 of the Pecos River. Surf. Water Qual. Bur., Plan. and Eval. Sec. Santa Fe.
- New Mexico Environment Department. 1998b. 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. Surf. Water Qual. Bur. Santa Fe. 30 pp.
- New Mexico State Engineer. 1995. Rules and regulations governing drilling of wells and appropriation and use of ground water in New Mexico. 166 pp.
- New Mexico Water Quality Control Commission. 1996. Water quality and water pollution control in New Mexico. NMED/SWQ-96/4. 163 pp.
- New Mexico Water Quality Control Commission. 1995. State of New Mexico standards for interstate and intrastate streams. 20 NMAC 6.1. 51 pp.
- Owenby, J.R. D.S. Ezell, and R.R. Heim. 1992. Monthly precipitation probabilities: selected probability levels derived from the 1961-1990 normals. Climatography of the U.S. No. 81 - Supp. No. 1. U.S. Dept. Comm. Asheville, NC. 12 pp.
- Rosgen, D. 1996. Applied river morphology. Wildland Hydrology. Pagosa Springs, CO.
- Savory, A. 1988. Holistic resource management. Island Press. Washington, DC. 564 pp.

- Stoddart, L.A., A.D. Smith, and T.W. Box. 1975. Range management. Third Ed. McGraw-Hill, Inc. New York. 532 pp.
- Sublette, J.E., M. Hatch, and M. Sublette. 1990. The fishes of New Mexico. U. New Mex. Press. Albuquerque.
- USDA Soil Conservation Service. 1983. Soil survey of Chaves County, New Mexico, northern part. 224 pp.
- U.S. Fish and Wildlife Service. 1992. Pecos bluntnose shiner recovery plan. U.S. Fish and Wildlife Service, Region 2. Albuquerque, NM. 57 pp.
- U.S. Fish and Wildlife Service. 1997. Biological opinion on the Roswell Resource Area Resource Management Plans. Consult. #2-22-96-F-102.
- Wilkins, D.W. and B.M. Garcia. 1995. Ground-water hydrographs and 5-year ground-water-level changes, 1984-93, for selected areas in and adjacent to New Mexico. U.S. Geol. Survey Open-File Rep. 95-434. 267 pp.
- Wilson, L. 1981. Potential for ground-water pollution in New Mexico. New Mex. Geol. Soc., Spec. Pub. No. 10. pp. 47-54.

## DECISION RECORD

Decision: It is my decision to authorize the issuance of a term grazing permit for public lands on the Thomas Cooper Ranch, Allotment 65020. Additional mitigation measures identified in the environmental impacts sections of the attached environmental assessment have been formulated into terms and conditions of the permit. Comments on this proposal were considered, and necessary changes have been incorporated into the environmental assessment.

---

T. R. Kreager,  
Acting Assistant Field Office Manager - Resources

---

Date

## FINDING OF NO SIGNIFICANT IMPACT AND RATIONALE

EA No. NM-066-98-149

### Finding of No Significant Impact:

I have reviewed this environmental assessment for Allotment 65020, including the explanation and resolution of any potentially significant environmental impacts. I have determined that the proposed action and alternatives will not have significant impacts on the human environment, and that preparation of an Environmental Impact Statement (EIS) is not required.

### Rationale for Recommendations:

The proposed action and alternatives would not result in any undue or unnecessary environmental degradation. The proposed action will be in compliance with the Roswell Approved Resource Management Plan and Record of Decision (October 1997).

\_\_\_\_\_  
T.R. Kreager  
Acting Assistant Field Office Manager - Resources

\_\_\_\_\_  
Date