DECISION RECORD

Environmental Assessment No. NM-060-99-029
Section 3 Grazing Authorization
Allotment 64048

It is my decision to issue a ten-year permit to Mr. Gary Lynch to graze cattle on Allotment 64048 based on the Proposed Action in Environmental Assessment NM-060-99-029 (EA). Permitted use will be for nine animal units yearlong at 100 percent federal range, which corresponds to 108 animal unit months.

The grazing permit was proposed forissuance on March 1, 1999 in the EA, butwas delayed bythe consultation process with the U.S. Fish and Wildlife Service. The permit will be issued once this decision becomes final.

Vegetation monitoring studies and riparian assessments will continue on the allotment upon issuance of the permit. Changes to livestock management will be made if monitoring data show that adverse impacts to upland or riparian vegetation are occurring.

Allotment 64048 is operated concurrently with Allotment 64050. A permit issued in 1998 for Allotment 64050 will expire in 2008. Before the current permit expires on Allotment 64050, an management plan for both allotments will be developed and implemented.

Through the Rangeland Reforrn'94 initiative, the BLM developed new regulations forgrazing administration on public lands. With public involvement, fundamentals of rangeland health were established and written into the new regulations. The fundamentals of rangeland health are identified in 43 CFR §4180.1, and pertain to (1)watershed function; (2) ecological processes; (3) waterquality; and (4) habitat forthreatened, endangered, and other special status species. Based on available data and professional judgement presented in the EA, the fundamentals of rangeland health exist on Allotment 64048.

In accordance with 43 CFR §4160, a period of 15 days is allowed after the receipt of this proposed decision to protest it to the Authorized Officer in person or in writing. Points of protest should be specific. In the absence of a protest, this proposed decision will become the final decision of the Authorized Officer without further notice.

In accordance with 43 CFR §4.470, a period of 30 days is allowed following the date of the final decision to file an appeal and petition for a stay of the decision for the purpose of a hearing before an Administrative Law Judge. The specific points being appealed should be clearly and concisely stated. Appeals can be filed at the following address:

Field Office Manager
Bureau of Land Management
Roswell Field Office
2909 West Second Street
Roswell, New Mexico 88201

signed by T. R. Kreager — 8/16/99
Assistant Reld Office Mlager - Resources — Date

ENVIRONMENTAL ASSESSMENT
for

Section 3
GRAZING AUTHORIZATION
on
ALLOTMENT 64048

Township 7 South, Range 25 East
Sections 25, 36 (portions)

Township 7 South, Range 26 East
Sections 19, 20, 29-31 (portions)

EA-NM-060-99-029

November 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 64048.

The scope of this environmental assessment is limited to the effects of issuing a new grazing permit on Allotment 64048. 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 64048, 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 64048. 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. Gary Lynch a ten-year permit beginning March 1, 1999 to graze cattle on Allotment 64048. Permitted use would be for nine animal units (AUs) yearlong at 100 percent federal range, which corresponds to 108 animal unit months (AUMs).' The BLM does not control overall livestock numbers on the allotment.

Under the proposed action, management of the allotment would continue under the terms and conditions of the current permit. No changes to livestock management or to existing range improvements would be required.

B. No Grazing Permit Alternative

Under this alternative a new grazing permit would not be issued for Allotment 64048. No grazing would be authorized on federal land on this allotment.

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

A. General Setting

Allotment 64048 is in Chaves County, 22 miles northeast of Roswell. The Pecos River flows north-to-south through a broad alluvial valley along the east boundary of the allotment. Most of the allotment is on the valley floor and lies within the 100-year floodplain. The western quarter of the allotment includes breaks and low terraces that are dissected by numerous small draws. Elevations range from 3552 feet at the downstream end of the river to 3625 feet on the terrace west of the river.

The climate is semi-arid with normal annual temperatures ranging from 20OF to 950F at Bitter Lake National Wildlife Refuge (Kunkel 1984). Observed minimum and maximum temperatures were -220F and 1130F, 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 64048 is considered a riparian allotment because of its 2.9 miles of riparian habitat along the Pecos River. Riparian (and 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.

1 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.

Reservoir releases are controlled by 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.

Much of the allotment is intensively farmed. Alfalfa is grown on approximately 800 acres that is divided among 15 separate irrigated fields. Water is supplied by several wells. The fields lie on a low terrace in the 1 00-year floodplain, and are split between the north and south portions of the allotment.

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 natural gas development.

B. Affected Resources

The following resources or values are not present or would not be affected by the authorization of livestock grazing on Allotment 64048: 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

Mr. Lynch currently runs a cow/calf operation on Allotment 64048 with a permitted use of nine animal units (AUs) yearlong at 100 percent federal range. Nine AUs correspond to 108 animal unit months (AUMs). The allotment covers approximately 1500 acres, including 530 acres of BLM land, 920 acres of private land, and 50 acres of state land.

Allotment 64048 is managed concurrently with Allotment 64050 (see map). In addition to livestock grazing, some of the allotment is intensively farmed. Because the amount of public range is small, and the irrigated fields on the private land provide abundant forage, the BLM does not control livestock numbers on Allotment 64048. Instead, the BLM bills Mr. Lynch for the amount of forage available on the public rangeland within the allotment.

Cattle are rotated among pastures on the two allotments, and the irrigated fields on Allotment 64048. Livestock are grazed on Allotment 64048 during the growing season to make use of the forage and available water, then are moved to the uplands on 64050 during the dormant season to make use of forage there, and to avoid goldenrod found on the bottomlands.

Fencing controls livestock movement on the private rangeland and irrigated land, as well as the public rangeland. A well at T7S R26E, SWIASEIASection 30 is the base water for the allotment. However, a good-quality, high-capacity well in the SEIANEIASection 19 is more heavily used, and several other wells also exist. Livestock can water at a tank in Section 30, irrigation ponds in Sections 19 and 20, and the Pecos River.

The allotment was placed in the "M" category based on monitoring studies. An M-category allotment

indicates that the range condition is satisfactory, and in either a static or upward trend.

Environmental Impacts

Under the Proposed Action, current livestock grazing management would continue on the allotment. Allotment 64048 would continue to be operated concurrently with Allotment 64050 as described in the Affected Environment section.

Under the No-Grazing Alternative, there would be no livestock grazing authorized on BLM lands. If livestock grazing were to continue on privately owned lands, adjacent BLM land would have to be fenced apart to prevent trespass on public lands (43 CFR 4140.1 (b)(1)). The expense of fencing would be borne by the private landowner. Vandalism and littering would be more likely, and range improvements on public land that are currently maintained by the permittee would fall into disrepair.

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 RMPIEIS (BLM 1994).* The No-Grazing alternative was not selected in either document.

2. Vegetation

Affected Environment

Allotment 64048 is in the Drainages, Draws, and Canyons community type. It is described as a riparian allotment because of its proximity to the Pecos River. Riparian vegetation, found primarily within a narrow band along the river, is discussed in the Riparian /Wetlands section of this environmental assessment.

The upland vegetative community of the rangeland can be characterized as grassland that has become dominated by mesquite. Bush muhly, plains bristlegrass, vine mesquite, and some annual forb species provide ground cover between mesquite hummocks. Tobosa is also found in swales.

Alkali sacaton is common in the bottomlands, and is interspersed with saltcedar and cottonwood. Goldenrod is also found in the bottomlands, making it difficult to graze livestock there during the dormant season when goldenrod is toxic to livestock. Mr. Lynch conducted a prescribed burn of saitcedar along the river in the spring of 1998. The crowns of most of the mature trees were destroyed, but stumps have resprouted.

Table 1. Vegetation Monitoring Data: Averages from 1983-92

	Grasses	Forbs	Shrubs	Trees	Litter	Bare Ground	Rock
Percent Composition of Vegetative Cover	62	0	3	0	Not Applicable		
Percent Ground Cover	25		19		25 31		0

Ecological (Range) Condition and Trend	The average condition rating is 50 and appears to be stable.[2]

[2] The condition rating is defined as the percentage of the plant community that is climax for the ecological (range) site at the time of monitoring.

General objectives for each vegetation community are described in the Roswell Approved RMP and Record of Decision (BLM 1997), and the Roswell Draft RMP/EIS (BLM 1994). Table 1 presents vegetation monitoring data in terms of percent composition of vegetative cover, percent ground cover, and ecological condition. The monitoring site is on BLM land at the edge of the floodplain, just below the breaks on the west side of the allotment.

Monitoring data are within acceptable ranges for the vegetation objectives described in the RMP (BLM 1997). The monitoring data also fit the range of potential ground cover figures listed in the Soil Conservation Service Technical Guides for this ecological site which is a Salty Bottomland SD-2 & 3. The shrub component is high for this site, which is probably due to the encroachment of mesquite.

Environmental Impacts

Under the Proposed Action, vegetation would continue to be grazed and trampled by livestock, primarily those species preferred as forage. Growing season impacts to bottomland plant species would continue when livestock are moved into the riparian area. Generally, the uplands would be lightly grazed because livestock would be present mainly during the dormant season. Past monitoring data suggest that ecological trend on upland sites would probably remain stable at the existing permit level. Some overutilization of the bottomlands could occur if livestock were grazed there during each growing season.

Under the No-Grazing Alternative, 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 species diversity in the long term, but diversity 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 could become decadent in the long term without livestock removing standing vegetation. Alkali sacaton composition would also be tempered by saitcedar 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. The primary soil map unit is the Glendale- Pecos-Harkey association, which covers more than half the allotment. These soils are found within the 100-year floodplain, and formed in various types of calcareous alluvium. The soils are deep and well-drained, and textures of the surface layer can be either silt loam or clay loam. The wind erosion hazard is high, and the water erosion hazard is moderate to high.

Other soil map units found on the allotment include Ustifluvents, which occur in strips along the river, Yturbide loamy sand on terrace fronts above the floodplain, and Dona Ana sandy loam on low terraces above the Yturbide soil. The water erosion hazard on these soils is moderate, but the wind erosion

hazard is high.

Ecological site descriptions are the basis for range trend analysis. Most of the allotment is in a Salty Bottomland SD-2 & 3 site, which is related to the 100-year floodplain, and to Ustifluvents and G lendale- Pecos- Harkey association soil units. The terraces are in a Gravelly SD-3 site, which is related to the Yturbide and Dona Ana soil units.

Environmental Impacts

Under the Proposed Action, 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 highly vulnerable to wind erosion. Removal of the vegetative cover increases the exposure of soils to the erosive force of wind. Monitoring data indicate, however, that the current level of grazing is sustainable, and should maintain an adequate vegetative cover to protect soils from wind erosion. Rangeland monitoring would help ensure an adequate vegetative cover to protect soils from wind or water erosion by indicating when and where changes to livestock management are needed in the future.

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.

4. Water Quality

Affected Environment - Surface Water

Approximately 2.9 miles of the Pecos River serve as the east boundary of the allotment. Numerous small draws drain to the river from the west, but no major tributaries cross the allotment. The allotment is on the river reach between Salt Creek and 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 pollutant. Livestock grazing on the allotment, however, is not expected to be a significant cause of sediment loading to the Pecos River under the Proposed Action. 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 also considered siltation and stream bottom deposits in evaluating impacts to the threatened Pecos bluntnose shiner and its habitat. The NMED (1998a) 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 the Proposed Action.

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 64048 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 Pehasco) 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 falls within the northern part of the Roswell Underground Water Basin (New Mexico State Engineer 1995). 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 from the alluvium are common (Geohydrology Associates, Inc. 1978). There are several irrigation wells on the allotment, with yields as high as 400 gallons per minute. 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 WOCC has the primary responsibility for ground-water quality management in New Mexico. In their most recent report on water quality, the WQCC (1996) did not find livestock grazing on rangelands to be an important potential source of contamination to ground water.

Wilson (1981) also discussed 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 64048 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, strearnflows, 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 than it historically.

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 1120 acres on Allotment 64048, including 275 acres of BLM land and 845 acres of private land. Current floodplain development on the allotment consists of several wells, and several miles of fence.

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. 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, but these changes would be minor if the farm remained in operation. New fences might be constructed to prevent livestock from moving onto public rangeland. Vegetation cover and diversity would probably increase somewhat on the rangelands, and localized impacts, such as cow trails, might revegetate over time.

Livestock grazing under the Proposed Action would not add to cumulative effects to the floodplain beyond the current level of development. The No-Grazing Alternative might improve floodplain function slightly because vegetation cover would increase, and some roads and fences might be removed or abandoned. The improvement expected under the No-Grazing Alternative would be insignificant, however, because current impacts are minor compared to all other impacts to the floodplain, and because additional fences might be constructed.

6. Riparian/Wetiand Areas

Affected Environment

Riparian areas are found along 2.9 miles of the Pecos River on the allotment, most of it privately owned. The BLM administers approximately one-half mile along the river, but this consists of three separate parcels accounting for a small amount of riparian acreage. The 100-year floodplain is approximately one mile wide on this reach of the river.

The riparian vegetation community is tied to landform within the floodplain and is influenced by flooding intervals. The landform 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 fairly stable, but are sloughing or actively being cut in some locations. Bank erosion is most likely due to entrenchment of the channel rather than disturbance associated livestock grazing or other land use activities. The channel material is primarily a sand/silt bed with small to medium debris, and the stream gradient is relatively flat (0.25 percent).

Riparian vegetation on the allotment is dominated by dense thickets of saltcedar. Mr. Lynch burned the saltcedar in 1998, removing much of the canopy. Stumps have resprouted, however, and will require additional treatment to allow native species to re-establish themselves.

Seepwillow and Douglas rabbitbrush are other shrub species present. Alkali sacaton Is the primary grass species, though it is limited by grazing pressure and the dominance of the saltcedar. Alkali muhly, inland saltgrass, goldenrod, and ragweed are other grass and forb species present. A few scattered cottonwoods are also found on the allotment.

Environmental Impacts

Under the Proposed Action, livestock use of the riparian area along the Pecos River would continue annually on a seasonal basis. The greatest vegetation impacts would occur at livestock concentration areas, such as crossings, shaded areas, and accessible points along the river.

Some bank sloughing might occur from trampling in some locations. Utilization of grass species, such as alkali sacaton, would be heavy within the floodplain and along the river due to annual use of the area during the growing season.

Under the No-Grazing Alternative, the condition of vegetation in the floodplain and riparian areas would improve. Enhancements in vegetative cover and diversity would continue to be limited by the regulation of river flows and channel entrenchment, which promote the growth of saltcedar and other exotic species. Grasses would initially increase following the exclusion of livestock, but plant vigor could decline from the lack of vegetation removal, making ground cover species rank. Because livestock grazing would not be permitted under this alternative, the range program would be less likely to

implement range management projects, such as brush control and exotic species control.

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.

Feral pigs are common along the Pecos River. They root for food and turn over large areas of soil, causing a greater direct impact to soils than the cattle grazed on the allotment. To prevent further damage, the permittee has set traps around the irrigated fields to remove the pigs from the allotment. Other common mammal species using the area include mule deer, coyote, gray fox, bobcat, striped skunk, porcupine, raccoon, badger, jackrabbit, cottontail, white-footed mouse, deer mouse, grasshopper mouse, kangaroo rat, spotted ground squirrel, and wood rat.

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). 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.

A variety of herptiles occur in the area such as yellow mud turtle, box turtle, eastern fence lizard, side-blotched lizard, horned 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 lack of an interdisciplinary Allotment Management Plan would have long-term negative impacts to wildlife habitat because the emphasis on forage production for livestock may not reflect prevailing wildlife habitat management concerns.

Under the No-Grazing Alternative, 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 this Alternative, range improvement projects that had benefitted wildlife, such as water developments, would be abandoned. New range improvement projects that could benefit 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, downstream to a point about twelve miles south of the DeBaca/Chaves county line. The second reach is from Highway 31 east of Hagerman, south to Highway 82 east of Artesia.

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, livestock grazing impacts to the Pecos bluntnose shiner would be negligible. Under the No-Grazing Alternative, 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)[3] for pollutants of these water-quality-limited stream segments. 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

[3] 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."

developing TMIDLs 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 qualitylimited (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 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.

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 either 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.

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.

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 agreement with the BLM. No other nesting terns have been found to date.

Environmental Impacts

No impacts to the interior least tern would result from livestock grazing under either 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, livestock grazing impacts to the Pecos pupfish would be negligible. Under the No-Grazing Alternative, 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 BLIVI land. It became evident at this location 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 saitcedar growing in very dense stands due to the availability of groundwater. The areas appear to be potential wetland-type sites for Pecos sunflower if saltcedar was not present. 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 either alternative, potential habitat for the sunflower will be dominated by saltcedar. The sunflower has not been observed since the saltcedar was burned by the permittee in 1998, but it may appear later if seeds are in the soil. Additional saltcedar treatment might be necessary before the sunflower emerges.

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 and private 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 BILM 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. Access to the river is limited on the allotment, though it is possible that fishing or minnow seining could take place.

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

Environmental Impacts

Under the Proposed Action, 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 the No-Grazing Alternative, no conflicts between ranching activities and recreational use would occur on public lands. Success of hunts and nonconsumptive opportunities would remain the same or slightly improve. Vandalism could still take place.

11. **Significant Caves and Karst**

Affected Environment

Allotment 64048 is in an area of medium to high potential for the occurrence of caves and karst. No caves or major karst features have been reported for the allotment, though a comprehensive inventory has not been completed.

Environmental Impacts

Because no caves or major karst features are known to exist on the allotment, impacts to these resources are not expected to be significant under either alternative. 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. Fencing to exclude livestock and off-highway vehicles might be prescribed to prevent soil erosion, vegetation trampling, and livestock effluent from reaching the cave. A separate environmental analysis would be prepared prior to fence construction.

12. Air Quality

Affected Environment

The allotment is in a Class 11 area for the Prevention of Significant Deterioration of air quality as defined by the federal Clean Air Act. Class 11 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 than the No-Grazing Alternative. 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 64048, 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 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 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. 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.

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

Allotment 64048 is operated concurrently with Allotment 64050. A permit issued in 1998 for 64050 will expire in 2008. Before the current permit expires on Allotment 64050, an Allotment Management Plan for both allotments will be developed and implemented.

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 AND AGENCIES CONSULTED

Chaves County Public Land Use Advisory Committee Mr. Gary Lynch - 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

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