

APPENDIX 11
RESULTS OF SECTION 7 CONSULTATION
ROSWELL RESOURCE AREA

This appendix lists results of consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act.

TABLE A11-1
LIST OF DOCUMENTS IN APPENDIX 11

Document
1. Table A11-2, Federally Listed Species Occurring or Potentially Occurring in the Roswell Resource Area
2. Table A11-3, State-Listed Species Occurring or Potentially Occurring in the Roswell Resource Area
3. Table A11-4, BLM Sensitive Species Occurring or Potentially Occurring in the Roswell Resource Area
4. Biological Assessment
5. Biological Opinion
6. BLM response to the Biological Opinion

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**TABLE A11-2
FEDERALLY LISTED SPECIES OCCURRING
OR POTENTIALLY OCCURRING IN THE ROSWELL RESOURCE AREA**

Common Name	Scientific Name	Status
Mammals		
Black-footed ferret	<i>Mustela nigripes</i>	FE
Swift fox	<i>Vulpes velox</i>	FC
Birds		
American peregrine falcon	<i>Falco peregrinus anatum</i>	FE
Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	FE
Interior least tern	<i>Sterna antillarum athalassos</i>	FE
Brown pelican	<i>Pelicanus occidentalis</i>	FE
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE with proposed critical habitat
Bald eagle	<i>Haliaeetus leucocephalus</i>	FE
Mexican spotted owl	<i>Strix occidentalis lucida</i>	FT with critical habitat
Mountain plover	<i>Charadrius montanus</i>	FC
Fish		
Pecos gambusia	<i>Gambusia nobilis</i>	FE
Pecos bluntnose shiner	<i>Notropis simus pecosensis</i>	FT with critical habitat
Pecos pupfish	<i>Cyprinodon pecosensis</i>	FC
Arkansas river shiner	<i>Notropis girardi</i>	FC
Aquatic Invertebrates		
Pecos assiminea snail	<i>Assiminea pecos</i>	FC
Roswell spring snail	<i>Pyrgulopsis roswellensis</i>	FC
Koster's tryonia	<i>Tryonia kosteri</i>	FC
Plants		
Kuenzler's hedgehog cactus	<i>Echinocereus fendleri</i> var. <i>kuenzleri</i>	FE
Puzzle sunflower	<i>Helianthus paradoxus</i>	FC

Note: FE = Federal Endangered; FT = Federal Threatened; FC = Federal Candidate.

Source: BLM files, 1996.

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**TABLE A11-3
STATE LISTED SPECIES OCCURRING
OR POTENTIALLY OCCURRING IN THE ROSWELL RESOURCE AREA**

Common Name	Scientific Name	Status
Mammals		
Least shrew	<i>Cryptotis parva</i>	ST
Birds		
American peregrine falcon	<i>Falco peregrinus anatum</i>	SE
Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	SE
Interior least tern	<i>Sterna antillarum athalassos</i>	SE
Brown pelican	<i>Pelicanus occidentalis</i>	SE
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	ST
Bald eagle	<i>Haliaeetus leucocephalus</i>	ST
Baird's sparrow	<i>Ammodramus bairdii</i>	ST
Neotropic cormorant	<i>Phalacrocorax olivaceus</i>	ST
Bell's vireo	<i>Vireo bellii</i>	ST
Gray vireo	<i>Vireo vicinior</i>	ST
Reptiles		
Sand dune lizard	<i>Sceloporus arenicolus</i>	ST
Western ribbon snake	<i>Thamnophis proximus</i>	ST
Western river cooter	<i>Pseudemys gorzugi</i>	ST
Fish		
Arkansas River shiner	<i>Notropis girardi</i>	SE
Pecos bluntnose shiner	<i>Notropis simus pecosensis</i>	ST
Pecos gambusia	<i>Gambusia nobilis</i>	ST
Pecos pupfish	<i>Cyprinodon pecosensis</i>	ST
White Sands pupfish	<i>Cyprinodon tularosa</i>	ST
Bigscale logperch	<i>Percina macrolepida</i>	ST
Rio Grande silvery minnow	<i>Hybognathus amarus</i>	ST
Mexican tetra	<i>Astyanax mexicanus</i>	ST
Greenthroat darter	<i>Etheostoma lepidum</i>	ST

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**TABLE A11-3
STATE LISTED SPECIES OCCURRING
OR POTENTIALLY OCCURRING IN THE ROSWELL RESOURCE AREA**

Common Name	Scientific Name	Status
Canadian speckled chub	<i>Hybopsis aestivalis tretranemus</i>	ST
Suckermouth minnow	<i>Phenacobius mirabilis</i>	ST
Aquatic Invertebrates		
Pecos assiminea snail	<i>Assiminea pecos</i>	SE
Roswell spring snail	<i>Pyrgulopsis roswellensis</i>	SE
Koster's tryonia	<i>Tryonia kosteri</i>	ST
Invertebrates		
Noel's amphipod	<i>Gammarus desperatus</i>	SE
Plants		
Kuenzler's hedgehog cactus	<i>Echinocereus fendleri</i> var. <i>kuenzleri</i>	SL1
Puzzle sunflower	<i>Helianthus paradoxus</i>	SL1

Note: SE = State Endangered; ST = State Threatened; SL1 = State Endangered List 1

Source: BLM files, 1996.

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TABLE A11-4
BLM SENSITIVE SPECIES OCCURRING
OR POTENTIALLY OCCURRING IN THE ROSWELL RESOURCE AREA

Common Name	Scientific Name	Status
Mammals		
Arizona black-tailed prairie dog	<i>Cynomys ludovicianus arizonensis</i>	FC2
Pecos River muskrat	<i>Ondatra zibethicus ripensis</i>	FC2
Gray-footed chipmunk	<i>Tamias canipes</i>	FC2
Organ Mountains Colorado chipmunk	<i>Eutamias quadrivittatus australis</i>	FC2
New Mexican meadow jumping mouse	<i>Zapus hudsonius luteus</i>	FC2
Occult little brown bat	<i>Myotis lucifigus occultus</i>	FC2
Spotted bat	<i>Euderma maculatum</i>	FC2
Pale Townsend's big-eared bat	<i>Plecotus townsendii pallescens</i>	FC2
Fringed myotis	<i>Myotis thysanodes</i>	FC2
Long-legged myotis	<i>Myotis volans</i>	FC2
Long-eared myotis	<i>Myotis evotis</i>	FC2
Small-footed myotis	<i>Myotis ciliolabrum</i>	FC2
Cave myotis	<i>Myotis velifer incautus</i>	FC2
Yuma myotis	<i>Myotis yumanensis</i>	FC2
Big free-tailed bat	<i>Nyctinomops macrotis</i>	FC2
Birds		
Baird's sparrow	<i>Ammodramus bairdii</i>	FC2
White-faced ibis	<i>Plegadis chihi</i>	FC2
Ferruginous hawk	<i>Buteo regalis</i>	FC2
Loggerhead shrike	<i>Lanius ludovicianus</i>	FC2
Northern goshawk	<i>Accipiter gentilis</i>	FC2
Western burrowing owl	<i>Athene cunicularia hypugea</i>	FC2
Reptiles		
Sand dune lizard	<i>Sceloporus arenicolus</i>	FC2
Sacramento Mountain salamander	<i>Aneides hardii</i>	FC2
Texas horned lizard	<i>Phrynosoma cornutum</i>	FC2

**TABLE A11-4
BLM SENSITIVE SPECIES OCCURRING
OR POTENTIALLY OCCURRING IN THE ROSWELL RESOURCE AREA**

Common Name	Scientific Name	Status
Fish		
White Sands pupfish	<i>Cyprinodon tularosa</i>	FC2
Rio Grande shiner	<i>Notropis jemezianus</i>	FC2
Arkansas River speckled chub	<i>Macrhybopsis aestivalis tetraneums</i>	FC2
Flathead chub	<i>Platygobio gracilis</i>	FC2
Headwater catfish	<i>Ictalurus lupus</i>	FC2
Longfin dace	<i>Agosia chrysogaster</i>	FC2
Plains minnow	<i>Hybognathus placitus</i>	FC2
Aquatic Invertebrates		
Bonita diving beetle	<i>Deronectes noemexicana</i>	FC2
Invertebrates		
Noel's amphipod	<i>Gammarus desperatus</i>	FC2
Plants		
Kerr's milkvetch	<i>Astragalus kerrii</i>	FC2
Grama grass cactus	<i>Pediocactus papyracanthus</i>	FC2
Sierra Blanca cliff daisy	<i>Chaetopappa elegans</i>	FC2
Sandhill goosefoot	<i>Chenopodium cycloides</i>	FC2

Note: FC2 = Federal Candidate Category 2. These species were listed as FC2 by the U.S. Fish and Wildlife Service, but are no longer considered candidate species. The BLM has included these former FC2 species in a BLM sensitive species list.

Source: BLM files, 1996

**Biological Assessment Update for Previous Land Use Plans, Plan Amendments,
Environmental Analyses (1976-1987)
and for the 1996 Roswell Resource Area Resource Management Plan**

Roswell Resource Area

July 8, 1 996

1. Introduction

The Bureau of Land Management (BLM) is required by Section 7 of the Endangered Species Act of 1973 (ESA), as amended, to determine if any action it completes or permits would adversely impact federally threatened or endangered species. The BLM also evaluates potential impacts to federal candidate species. Candidates are those species for which the US Fish and Wildlife Service (USFWS) has sufficient information on their biological status and threats to propose them as endangered or threatened, but for which issuance of a proposed rule is precluded.

The listing of species as threatened or endangered is extremely dynamic, there is a need to update the existing biological assessments/EISs to include newly listed species, and to amend the status of other species. To determine how a proposal affects listed species and their habitats, the BLM has decided to complete an updated Biological Assessment (BA) for current land use plans, plan amendments, and environmental analyses. This BA is two-fold in that it will also address the new Roswell Resource Area Resource Management Plan (RMP). The Roswell RMP is the first comprehensive land use plan prepared for the entire Roswell Resource Area (RRA). Valid decisions from past documents are carried forward in the RMP; all past land use plans, plan amendments, and environmental analyses will be superceded by the approval of the Final Roswell RMP.

This BA updates the following RRA land use plans, plan amendments, and environmental analyses, which were developed in conformance with procedures in place at the time of preparation.

1976 East Chaves Management Framework Plan
1979 East Roswell Grazing Environmental Statement
1981 Environmental Assessment - Oil and Gas Leasing Roswell District
1984 Roswell Management Framework Plan Amendment
1986 & 1987 Fort Stanton Management Framework Plan Amendments

As mentioned, several wildlife and plant species were added to the list of federally threatened or endangered species, and several species were listed or upgraded to candidate category 1 species since the completion of these documents. The evaluations and determinations in this BA is based on the current USFWS listing found

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in the Federal Register Vol. 61, No. 40, dated Wednesday, February 28, 1996, 50 CFR Part 17, Endangered and Threatened Species, Plant and Animal Taxa; Proposed Rule. An important change is the deletion of candidate category 2 species. These former category 2 species will not be included in this BA. Former candidate category 1 species, now simply referred to as candidate species, are being included in this BA.

Federally-listed species that were evaluated at the time of preparing the land use plans/amendments are summarized in Table 1. The previous assessments covered only those species that fell within the scope of the documents; for example, the Fort Stanton Management Framework Plan Amendment does not include endangered fish species found in the Pecos River. Table 2 presents the chronology of species listing and land use plans, amendments and environmental analyses preparation. Priority species that were federally listed since the time of the last land use plan (Roswell MFPA 1984) are the Interior least tern and Pecos bluntnose shiner. Other listed species are lower priority; for example, the historic range of the Aplomado falcon does not include the RA, habitat for the Mexican spotted owl is not present in the RA, the southwestern willow flycatcher is a migrant in the Pecos Valley with occasional sightings.

The Roswell Resource Area has prepared the Roswell Resource Area Draft Resource Management Plan (DRMP)/Environmental Impact Statement that would, upon finalization and approval, supercede all of the current plans, amendments and environmental analyses. This BA includes evaluations of land use planning decisions found in the RMP for potential impacts to all federal special status species occurring or potentially occurring in the RRA. This plan provides a comprehensive framework for managing the public lands, including the federal mineral estate, and for allocating resources in the RRA for the next twenty years. A plethora of information about various natural resources and land use activities are found in this document and will serve as current environmental baseline data. Please refer to Chapter 3 of this document for more up-to-date information for the entire Resource Area.

The Proposed RMP/Final EIS is scheduled to go to final printing near the end of September 1996.

Acronyms used in the following Tables are: FE = Federal Endangered; FT = Federal Threatened; FPE = Federal Proposed Endangered; PCH = Proposed Critical Habitat; CH = Critical Habitat; FC = Federal Candidate; FC1 = Federal Candidate Category 1; MFP = Management Framework Plan; MFPA = Management Framework Plan Amendment; RMP = Resource Management Plan; EA = Environmental Assessment; EIS = Environmental Impact Statement.

Table 1. Current Land Use Plans/Amendments/EAs and Species Considered

<u>1976 East Chaves Management Framework Plan</u>		<u>Status*</u>
Black-footed Ferret	<i>Mustela nigripes</i>	FE
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	FE
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FE
Pecos Gambusia	<i>Gambusia nobilis</i>	FE
<u>1979 East Roswell Grazing Environmental Statement</u>		
Black-footed Ferret	<i>Mustela nigripes</i>	FE
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	FE
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FE
Pecos Gambusia	<i>Gambusia nobilis</i>	FE
Pecos Bluntnose Shiner	<i>Notropis simus</i> <i>pecosensis</i>	FT
Pecos Pupfish	<i>Cyprinodon pecosensis</i>	FC1
Arkansas River Shiner	<i>Notropis simus</i>	FPE
<u>1981 Oil and Gas Leasing Environmental Assessment</u>		
Black-footed Ferret	<i>Mustela nigripes</i>	FE
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	FE
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FE
Pecos Gambusia	<i>Gambusia nobilis</i>	FE
<u>1984 Roswell Management Framework Plan Amendment</u>		
Black-footed Ferret	<i>Mustela nigripes</i>	FE
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	FE
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FE
<u>1986 & 1987 Fort Stanton Management Framework Plan Amendment</u>		
Kuenzler's Hedgehog Cactus	<i>Echinocereus fendleri</i> var. <i>kuenzleri</i>	FE

* Status at the time of document preparation.

Table 2. Chronology of Species Listing and Document Preparation

Species	Listing Date	Status*	Plan/Amendment
Black-footed Ferret	03/11/67	FE	
Brown Pelican	10/13/70	FE	
Pecos Gambusia	10/13/70	FE	East Roswell MFP - 6/76
Bald Eagle	02/14/78	FE	East Roswell Grazing EIS - 9/79
Kuenzler's Hedgehog Cactus	10/26/79	FE	Oil and Gas EA - 7/81
American Peregrine Falcon	02/29/84	FE	Roswell MFPA - 9/84
Interior Least Tern	05/28/85	FE	
Northern Aplomado Falcon	02/25/86	FE	Fort Stanton MFPA - 4/86
Pecos Bluntnose Shiner	02/27/87	FT	Fort Stanton MFPA - 12/87
Mexican Spotted Owl	03/16/93	FT	
Puzzle Sunflower	09/30/93	FC1	Roswell Draft RMP - 9/94
Southwestern Willow Flycatcher	11/15/94	FE	
Koster's Tryonia	11/15/94	FC1	
Roswell Spring Snail	11/15/94	FC1	
Pecos Assiminea Snail	11/15/94	FC1	
Pecos Pupfish	11/15/94	FC1	
Arkansas River Shiner	11/15/94	FC1	
Swift Fox	11/15/94	FC1	
Mountain Plover	11/15/94	FC1	

* Status at time of document preparation.

Wildlife and plant species that have been added to the federal list since the time of preparing the original land use plans/amendments are tabulated below.

Table 3. Newly-listed Species and Species Not Included in Previous Planning Documents/Amendments

Common Name	Scientific Name	Status*	New *
Mammals			
Swift Fox	<i>Vulpes velox</i>	FC1	*
Birds			
Northern Aplomado Falcon	<i>Falco femoralis septentrionalis</i>	FE	
Interior Least Tern	<i>Sterna antillarum athalassos</i>	FE	
Southwestern Willow Flycatcher	<i>Empidonax trailii extimus</i>	FE	*
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	FT	*
Mountain Plover	<i>Charadrius montanus</i>	FC1	*
Fish			
Arkansas River Shiner	<i>Notropis simus</i>	FPE	*
Pecos Pupfish	<i>Cyprinodon pecosensis</i>	FC1	*
Aquatic Invertebrates			
Pecos Assiminea Snail	<i>Assiminea pecos</i>	FC1	*
Roswell Spring Snail	<i>Pyrgulopsis roswellensis</i>	FC1	*
Koster's Tryonia	<i>Tryonia kosteri</i>	FC1	*
Plants			
Puzzle Sunflower	<i>Helianthus paradoxus</i>	FC1	*

* Status at the time of document preparation. The BLM RRA considers newly-listed species as those listed in 1993 and later.

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Informal Section 7 consultation was initiated with the U.S. Fish and Wildlife Service (USFWS) on February 22, 1992, through a species list request for the Roswell Resource Management Plan (Consultation # 2-22-92-1-056). This species list was subsequently updated by USFWS Memorandum dated June 19, 1995, Federally Listed and Candidate Plant and Animal Species - County List for New Mexico.

A revised list of animal and plant species was recently published by the USFWS (Federal Register, Wednesday, February 28, 1996). Species formerly in Category 1 in prior Notices of Review are now simply known as candidates. Species that were formerly in Category 2 are no longer considered candidate species.

Species covered in this BA were determined in consultation with the USFWS. The following table is an inclusive list of all the species included in this BA and their current status.

Table 4. Threatened, Endangered and Candidate Species Occurring or Potentially Occurring in the Roswell Resource Area

Common Name	Scientific Name	Status
Mammals		
Black-footed Ferret	<i>Mustela nigripes</i>	FE
Swift Fox	<i>Vulpes velox</i>	FC
Birds		
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	FE
Northern Aplomado Falcon	<i>Falco femoralis septentrionalis</i>	FE
Interior Least Tern	<i>Sterna antillarum athalassos</i>	FE
Brown Pelican	<i>Pelicanus occidentalis</i>	FE
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	FE (w/ PCH)
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FT
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	FT (w/ CH)
Mountain Plover	<i>Charadrius montanus</i>	FC
Fish		
Pecos Gambusia	<i>Gambusia nobilis</i>	FE
Pecos Bluntnose Shiner	<i>Notropis simus pecosensis</i>	FT (w/ CH)
Arkansas River Shiner	<i>Notropis simus</i>	FPE (Canadian R.)
Pecos Pupfish	<i>Cyprinodon pecosensis</i>	FC
Aquatic Invertebrates		
Pecos Assiminea Snail	<i>Assiminea pecos</i>	FC
Roswell Spring Snail	<i>Pyrgulopsis roswellensis</i>	FC
Koster's Tryonia	<i>Tryonia kosteri</i>	FC
Plants		
Kuenzler's Hedgehog Cactus	<i>Echinocereus fendleri var. kuenzleri</i>	FE
Puzzle Sunflower	<i>Helianthus paradoxus</i>	FC

Summary of Land Use Plans, Plan Amendments and Environmental Analyses

Refer to the General Location Map showing the area of coverage for each document. The current land use plans, amendments and environmental analyses are summarized below with only those decisions influencing special status species habitat management on public lands within the Roswell Resource Area. The documents contain the detailed information about the natural resources and resource uses pertinent to the plan. These documents were made available to the USFWS for review in order to comply with ESA Section 7 consultation process. Please refer to these documents for more detailed information.

Land use plans consider and establish general protection and enhancement decisions for special status species based on laws and regulations. The decisions in these plans cannot be in violation of ESA, nor can the subsequent authorizations for specific activities. Land use planning is more general than site-specific activity planning. Activity planning and project planning is where specific measures to address special status species needs are made, and offers another level of consultation with the USFWS. Species listed after the preparation of land use plans were still considered during the NEPA process for specific activity plans and projects. For example, the Interior least tern, listed in 1985 as federal endangered, was analyzed in the 1995 MAPCO Pipeline Environmental Assessment even though it was never addressed in a land use plan.

There are only a few areas within the Resource Area that provide occupied habitat for federally-listed species, such as the Pecos River for several T/E fish and Fort Stanton for Kuenzier's hedgehog cactus. The scope for review will be on those areas and not on the entire 2.1 million surface acres of public lands administered by the Roswell Resource Area that do not support T/E species habitat.

It is not the intent of this BA to study each of the decisions as they potentially impact special status species from the time of plan approval to date. It is meant to portray succinct information about current land use decisions and the consideration made for special status species listed at the time of preparation. It is also meant to evaluate potential impacts of those decisions to newly-listed species under current land use plans.

The environmental baseline information will be the current situation for various resources as found in Chapter 3 of the DRMP, and not on the situation as it existed during the time of preparation of the existing documents.

As mentioned, once the Roswell Resource Area RMP is approved, all previous planning documents will no longer be in effect.

1976 East Chaves Management Framework Plan - This planning document encompasses that portion of Chaves County east of the Pecos River in the Roswell Resource Area which include about 425,300 acres of Natural Resource Lands. Natural Resource Lands would remain open to exploration and development of minerals, particularly oil and gas production; mitigation measures may be applied to location and design of mineral exploration and development facilities; grazing systems would be applied to 55 grazing allotments; vegetation manipulation would be conducted; wildlife habitat management plans would be developed; wildlife habitat improvement projects would be conducted; focus on recreational developments at Mescalero Sands and Commanche Hill areas. The planning unit was broken down into eight general vegetative subtypes: Shinnery Oak, Mesquite, Grasslands, Mixed Desert Shrub, Creosote, Active Dunes, Riparian, and Waste. All activities authorized by the planning document would occur in most vegetation types.

The following decisions provide management guidelines for the protection and enhancement of specific wildlife species habitat.

WL-1.1 Schedule intensive inventories in cooperation with the New Mexico Department of Game and Fish to determine if black-footed ferrets are presently inhabiting prairie dog towns within the planning unit.

WL-1.2 Maintain existing prairie dog towns and allow expansion of small towns to a minimum of 200 acres. Do not allow surface disturbances within 200 yards of existing prairie dog town perimeters and ban all prairie dog control programs.

WL-1.5 Maintain the shortgrass areas on about 7,920 acres to maintain aspect for the swift fox.

WL-2.3 Saltcedar control will only be conducted on specific sites selected where the control would not adversely impact resource values.

WL-7.1 Any impacts from proposed resource actions that may cause destruction to the existing riparian and aquatic habitats in the unit will be mitigated.

WL-7.3 Provide for the protection of mature cottonwoods in the riparian zones. Have allotment management plans containing these riparian zones provide for seedling establishment of cottonwoods either through grazing systems or with fenced plots until seedlings are established.

WL-7.4 Do not allow exploration, drilling, blasting or construction activities from Marc 1 to August 1 each year within one-half mile of river riparian habitat or bluffs and ridges having sites containing vertical faces 30 feet or greater in height unless the specified area has been inventoried by a qualified ornithologist. Do not allow parallel roads closer than 300 yards of the base or top of such bluffs or ridges.

Important nesting sites for protected bird species will be identified. Stipulations and use tolerances will be determined for each site. These management criteria will be incorporated into use authorizations and protective methods for each specific area or site.

WL-7.6 All existing and new powerline authorized rights-of-way on Natural Resource Lands will be electrocution safe for birds of prey.

WL-7.10 Conduct intensive inventory and analysis of the habitat use and requirements of the mountain plover and long-billed curlew.

WL-7.11 Mesquite control will be conducted on specific areas to enhance habitat for protected bird species.

WL-7.12 Selected sites will be fenced and excluded from livestock grazing for the enhancement of nesting habitat for protected birds species. Emphasis will be to select only the key nesting sites. No mesquite or desert shrub control will be conducted within the protected sites.

WL-7.13 Large bushes and trees in the habitat of birds of prey will be protected during mesquite control,

WL-1 1.2 Identified lands adjacent to and within the potentially flooded area (Overflow Wetlands Wildlife Habitat Area) will be acquired.

WL-1 1.3 Intensive inventories will be conducted adjacent to the Pecos River for the potential development as aquatic habitat.

WL-12,2 A habitat management plan will be developed on public land in the riparian zone aimed at riparian and aquatic community development and enhancement.

WL-1 2.3 Develop a unit-wide habitat management plan for the establishment and enhancement of aquatic and terrestrial habitats in association with existing and future water developments.

1979 East Roswell Grazing EIS - This environmental impact statement encompasses that portion of Chaves County east of the Pecos River within the boundary of the Roswell Resource Area which include about 425,300 acres of public land. This EIS proposes a grazing management program for portions of Chaves and Eddy County located east of the Pecos River, and all of Lea County. It reaffirms the continuation of livestock grazing on public land where it is presently authorized, reaffirms the classification for kind of livestock and period of use, designates areas to be excluded from livestock grazing, allocates the forage resource between livestock and big game,

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establishes a maximum level of range utilization at 40 to 60 percent, and directs the development of range improvement projects. Eight wildlife habitats were identified: Riparian; Drainages, Draws, Canyons; Mixed Desert Shrub; Mesquite Grassland; Creosote; Shortgrass; Shinnery Oak/Dune; and Broadleaf Tree (Upland). Livestock grazing and range improvement projects would occur in all habitat types with constraints based on habitat condition.

Standard operating procedures (SOP) and design features/safeguards (DFS) were developed to insure that the most acceptable practices for any given site are used during the period that range improvement projects are being undertaken and specific grazing systems are being applied.

SOP-4 Wildlife habitat would be assessed and a determination made as to the specific effects to be expected should the action be taken.

DFS-3 Areas meeting riparian and wetland habitat criteria would be protected to provide wildlife habitat. Protection measures would be selected for individual situations to include protective fencing, adjustments in livestock use, and/or establishment of buffer strips, as necessary.

DFS-4 Important habitat areas such as portions of broadleaf tree groves and the areas around dirt tanks, playas and watering tubs, would be fenced to provide islands of protected habitat (normally 2-3 acres in size).

DFS-5 During periods of drought or other emergencies, adjustments in livestock numbers would be made to guard against damage to the vegetal-soil resource.

DFS-6 Trees and large mesquite bushes (especially those containing nests of birds of prey) would be spared during brush control operations. Also, those portions of drainages leading into the Pecos River which contain the tall growth forms of woody species (about 1,000 acres) would be excluded from vegetative treatment programs.

DFS-1 1 A fire management plan would be developed prior to any prescribed burning of vegetation.

DFS-14 Areas containing threatened or endangered plants or animals would be avoided if adverse impacts would be expected to occur through implementation of the proposed action.

Further information gained during specific project layout and design may indicate that an effect does exist. In such an event, formal consultations with the Fish and Wildlife Service under Section 7 of the Endangered Species Act would be initiated. These consultations may then result in alteration or abandonment or the proposed range improvements.

1981 Oil and Gas Leasing Environmental Assessment - This environmental assessment encompasses the entire Roswell District which include about 14 million acres of federal mineral estate. It continues to authorize leasing and exploration for oil, gas, sodium and lithium brine, and carbon dioxide resources on public and reserved mineral lands within the Roswell District; promotes both leasing and production of these resources; authorizes abandonment of leases; and establishes standard operating procedures and mitigation. The same habitat types identified in the East Roswell Grazing EIS were listed in this assessment with the addition of the Pinyon-Juniper type. Oil and gas exploration and development would occur in all habitat types except Riparian, Broadleaf Tree, and Pinyon-Juniper habitat types.

Site-specific measures must be taken for each action to protect threatened or endangered plants or animals. Such measures will be the result of a site-specific survey as allowed by standard operating procedures. Standard or special stipulations will be included in any grant, thus assuring protection of those species.

Current Leasing Standard Operating Procedures -

A. I.a. In cave areas, drilling operations would not be conducted within 100 yards of any cave entrance, known passageway, or other subterranean aspect. Sludge oil disposal pits would not be located within 200 yards of known and surveyed cave entrances, underground passageways, or in other locations where the cave resources would be endangered by seeping oil or waste products. Such pits would not be located in sink holes, near fractures, or near cave entrances. All pits would be lined with an impervious material. Drilling sites would be cleared in a manner which would prevent an increase of natural water flow into cave entrances or aspects.

A.I.f. Major rivers and drainages. Exploration and/or drilling activities would, be prohibited within one quarter mile of river channels, marshes, reservoirs, or riparian habitats. Permanent improvements and/or operations would not be permitted in floodplains without approval of BLM's Roswell District Manager.

A.I.m. All permanent sump pits will be fenced to exclude livestock. Where wildlife mortalities are likely, pits will be covered with a fine mesh netting. As an alternative, fiberglass tanks may be used as long as access is restricted in the same manner as for pits.

A.I.n. The federal surface management agency is responsible for assuring that the area to be disturbed is examined prior to undertaking any surface-disturbing activities on lands covered by the lease, to determine effects upon any plant or animal species listed

or proposed for listing as endangered or threatened or their habitats. **If** the findings of this examination determines that the operation may detrimentally affect an endangered or threatened species, some restrictions to the operator's plan or even disallowance of use may result.

The lessee/operator may, at his discretion and cost, conduct the examination on the lands to be disturbed. This examination must be done by or under the supervision of a qualified resource specialist approved by the surface management agency. An acceptable report must be provided to the surface management agency identifying the anticipated effects of the proposed action on endangered or threatened species or their habitat.

In 1989, a **Supplement to the 1981 Oil and Gas Leasing Final EA** (NM-060-00-02) was prepared for the attachment of a Controlled Surface Use Special Oil and Gas Leasing Stipulation (Roswell #44) to protect riparian and wetland resources along the Pecos River in the Roswell Resource Area. About 13,940 federal fluid mineral acres along the Pecos River are potentially affected by this stipulation. Surface occupancy or use is subject to the following special operating constraints.

1. **Restricted Surface Disturbance:** Oil and gas activities will not be allowed within wetland or riparian habitat areas. However, where non-riparian or non-wetland areas exist within these lands, oil and gas activities may be allowed by the Authorized Officer.
2. **Limited ORV Use:** All vehicular use will be restricted to designated or authorized access routes.

In 1995, an **Interim Oil and Gas Leasing and Development EA for the Roswell Resource Area** (NM-066-95-096) was prepared. This document serves as a bridge between the 1981 Oil and Gas Leasing EA and the final Roswell Resource Area RMP. Leasing of cleared parcels would be conducted where federal mineral estate underlies surface administered by the BLM, or surface owned or administered by an individual or government agency other than the BLM. All lease parcels proposed for sale would be reviewed against the screening criteria listed in Appendix 1 of the EA. Those parcels failing to pass the screening process would not be offered for sale during the interim leasing period, but could be reconsidered for sale after the Roswell RMP is completed. Leasing stipulations contained in the 1981 Oil and Gas Leasing EA and any subsequent applicable EAs would be applied to lease parcels offered for sale to mitigate impacts. Exploration, development, production, and abandonment on previously issued leases and new leases would be conducted according to standard conditions of approval (see Appendix 5 of the EA, standard terms and conditions of oil and gas leases, Onshore Oil and Gas Orders, Notices to Lessees, and regulations, especially 43 CFR 3101.1-2. These practices mitigate impacts. Additionally, sitespecific environmental assessments would be prepared for individual actions, and additional impact mitigations could be developed in those assessments.

1984 Roswell Management Framework Plan Amendment - This plan amendment/environmental impact statement encompasses approximately 1.5 million

acres of public land in Quay, Guadalupe, Curry, DeBaca, Roosevelt, Lincoln, and most of Chaves County (west of the Pecos River). It proposes a rangeland management program for 284 grazing allotments. Stocking rates would be determined and adjustments made on 5 years of monitoring studies: downward adjustments would be applied in areas where poor and fair range conditions exist based on monitoring studies; increases of livestock numbers would occur in "M" category allotments based on monitoring studies; no grazing decisions will be issued on "C" category allotments. The plan amendment directs development of rangeland improvements and vegetation treatments, and provides for additional forage for big game and other wildlife species from vegetation treatments. The plan amendment did not identify specific habitat types but included the following in discussions for various wildlife species: riparian salt cedar, riparian cottonwood, drainages and bottomlands, canyons and draws, mixed desert shrublands; grass rolling uplands, shinnery oak, grainfields, escarpments, and special habitat features. Livestock grazing and range improvement projects would occur in all habitat types with constraints based on habitat condition.

Standard Operating Procedures -

1. Range improvements and vegetation treatments will be designed during specific cooperative management plan development. Site-specific impacts from projects will be analyzed in an Environmental Assessment (EA).
3. Where soils and vegetation are disturbed, reclamation measures will be taken, if applicable. These measures include returning the land to as near its natural form as possible and reseeding with mixtures of grass, legumes, and forbs to maintain vegetative cover and prevent erosion.
5. Cooperative Management Plans (CMPS) will be fully implemented, and an EA covering each CMP will be prepared. The plans will be monitored and evaluated following implementation so that periodic changes, if necessary, can be made on those plans not meeting multiple-use objectives. Flexibility in deviating from the normal livestock operation will be provided for in each CMP.
7. If additional range improvements or vegetation treatments are identified, they will be assessed through the EA process prior to implementation.
8. All application rates of herbicides will be determined based on individual range sites and the conditions at the time of application.
9. Application of herbicides will conform to BLM Manual 9220 and State of New Mexico and U.S. Environmental Protection Agency standards,
10. Tractor-mounted root-knives will be used to grub mesquite and cholla. The uprooted mesquite will be left in place after grubbing to provide wildlife habitat.

Uprooted cholla will be stacked and left in place or burned, depending on wildlife or other multiple-use needs.

11. In areas of vegetation treatment, livestock grazing would be deferred for a minimum of two consecutive growing seasons. A continual 16 month deferment period may be required in some instances.

12. Prescribed burning will be used primarily for maintenance of alkali sacaton or giant sacaton swales to remove rank and unpalatable growth. Site-specific EAs and burn plans will be developed for any prescribed burns.

16. Onsite analysis of areas proposed for inclusion in projected brush control treatments will be made to avoid highly desirable wildlife habitat which would be adversely affected by the treatments being considered.

17. Important wildlife habitat, such as broadleaf tree groves, aquatic and riparian sites, dirt tanks, watering tubs, active raptor nests, and the areas around them would be protected during brush control operations. These areas would be protected through the use of nonlethal rates of herbicides, or other means as deemed appropriate by resource specialists. Pseudoriparian areas and most major drainages would be excluded from chemical treatment. Drainages containing perennial streams would be excluded from chemical treatment programs within a distance of 1,320 feet.

19. A threatened, endangered, State-listed, or proposed-listed species clearance would be conducted by an appropriate BLM staff biologist prior to the beginning of any project. If a 'may affect' determination is made by the staff biologist, consultation would be undertaken with the U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, or the New Mexico Natural Heritage Program listing the species which may be affected. The results of the consultation would determine the course of action necessary to avoid adverse effects on listed species.

21. New or expanded grazing use and support facilities would be evaluated on a case-by-case basis so that impairment of wildlife habitat would be minimized or eliminated.

23. Areas meeting riparian and wetland habitat criteria would be assessed to determine if protection is needed to provide wildlife habitat. Protection measures will be selected for individual situations to include protective fencing, adjustments in livestock use, and/or establishment of buffer strips, as necessary. Where domestic livestock are excluded from riparian areas, alternate sources for livestock will be provided.

24. An environmental assessment will be prepared prior to the implementation of a habitat management plan.

1986 Fort Stanton MFPA - This plan amendment is specific to approximately 25,000 acres of federal lands at the Fort Stanton special management area located in Lincoln County. It designates a location suitable for a right-of-way (ROW) corridor for the ancillary ROWs associated with the proposed Sierra Blanca Regional Airport and provides for anticipated future uses at Fort Stanton.

Standard Operating Procedures -

1. A site-specific EA will be prepared prior to approval of any surface-disturbing activity.

5. A threatened, endangered, State-listed, or proposed-listed species clearance will be conducted by an appropriate BLM staff biologist prior to the approval of any project. If a "may affect" determination is made by the staff biologist, consultation will be undertaken with the U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, or the New Mexico Natural Heritage Program listing the species which may be affected. The results of the consultation will determine the course of action necessary to avoid adverse effects on listed species.

6. Activities in livestock areas which could affect cave resources, or where the location of caves could affect an activity, will be field checked to determine potential problems. A field check will determine if caves may be present and if a more detailed examination by earth-resistivity systems or other methods of detecting subsurface voids is needed. If this need is demonstrated, the detection of subterranean cavities will be the responsibility of the applicant and may be required prior to approval of major surface-disturbing activities.

7. Surface-disturbing activities which alter the water flow or add sediments into the Rio Bonito, a source for the underground creek in Fort Stanton Cave, will be mitigated to eliminate or minimize the impact to the creek waters or watershed.

8. When soils and vegetation are disturbed, reclamation measures will be taken, if applicable. These measures include returning the land to as near its natural form as possible and reseeding with mixtures of grass, legumes, and forbs to maintain vegetative cover and prevent erosion.

9. Natural and beneficial floodplain and riparian values will be protected, preserved, and restored to the greatest extent possible using policy and guidelines set forth in Executive Orders 11988, 11990, and 11514.

1987 Fort Stanton MFPA - This plan amendment is specific to approximately 25,000 acres of federal lands at the Fort Stanton special management area located in Lincoln

County, It designates a location for a developed recreation site in the Salado Creek Drainage and other minor sites or trails on federal lands at Fort Stanton as the need arises.

1. A site-specific EA will be prepared prior to approval of any surface-disturbing activity.

4. A threatened, endangered, State-listed, or proposed-listed species clearance will be conducted by an appropriate BLM staff biologist prior to the approval of any project. If a “may affect” determination is made by the staff biologist, consultation will be undertaken with the U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish, or the New Mexico Natural Heritage Program listing the species which may be affected. The results of the consultation will determine the course of action necessary to avoid adverse effects on listed species.

1995 Roswell Resource Area Draft RMP/EIS - The DRMP contains many decisions relating to the protection of special status species habitat. Please refer to Chapter 2 Alternative E (Preferred Alternative), Areas of Critical Environmental Concern, Appendix 3 - Surface Use and Occupancy Requirements, Appendix 4 - Roswell District Conditions of Approval, and Appendix 14 - ACEC Maps. Many decisions to protect special status species and their habitats are found under the various affected resources and not specifically under Wildlife Habitat Management.

Keep in mind that there are several discretionary actions which allow the BLM to protect habitat that do not require land use planning decisions. For example, the sale of mineral materials is discretionary, sand and gravel operations within major drainages are typically not authorized. Leasing of oil and gas parcels is discretionary, but in most cases leases are sold with lease stipulations or lease notices. Rights-of-way are discretionary, proposed routes are frequently modified to avoid impacts or similar rights-of-way are combined into a corridor to reduce habitat disturbance.

II. Species Accounts by Status

Analyses and determinations of decisions in previous land use plans, plan amendments and environmental analyses (Analysis) are presented along with the analyses and determinations for decisions in the Roswell Resource Area Draft Resource Management Plan (DRMP Analysis).

A. Federal Endangered Species

Mammals

Black-Footed Ferret - *Mustela nigripes*

Status & Presence in Planning Area: This species is usually found in association with prairie dog towns in grassland plains and surrounding mountain basins up to 10,500 feet elevation. Historically, this species was reported from all but the southernmost portion of the state, i.e., south of the Mogollon Plateau east to the Pecos Valley. In New Mexico, the majority of black-footed ferrets were associated with Gunnison's prairie dog (*Cynomys gunnisoni*) colonies, which occur in grasslands located in the northern and western portions of the state (Findley et al. 1975). Only one ferret report was from a black-tailed prairie dog (*C. ludovicianus*) colony. Black-tailed colonies were historically widespread east of the Rio Grande and in southwestern New Mexico (Findley et al. 1975). It is believed that this species was never abundant in eastern New Mexico as few records of ferret occurrence have come from this area.

Documented sightings have occurred in DeBaca and Curry County. The last confirmed sighting occurred in 1934. Suitable habitat in the Roswell Resource Area is present. There are twelve known prairie dog towns located either entirely or partially on public lands. The towns encompass about 1,422 acres, and range from 2 acres to 720 acres in size. Five towns are 80+ acres in size. In 1978, intensive inventories for black-footed ferrets were conducted in coordination with the New Mexico Department of Game and Fish on four major towns with negative results. Surveys of several prairie dog towns were conducted in 1995 to determine prairie dog town activity in conjunction with rights-of-way authorizations and the development of surface use and occupancy restrictions for the Roswell RMP. The largest active black-tailed prairie dog town, located near Oscura, NM, is about 720 acres in size. No ferrets were observed prior to a prairie dog transplant operation conducted at this town during 1995.

Endangerment Factors: Prairie dog colonies are the black-footed ferret's key habitat. The conversion of grassland into cultivation and prairie dog control efforts have resulted in near extinction of the black-footed ferret. Prairie dog colonies throughout New Mexico have been affected by the plague, resulting in a decline in the overall prairie dog populations.

Analysis: There are no known records of this species having occurred on public

lands in the Roswell Resource Area. There are no designated critical habitat areas in the Resource Area. Activities in the planning documents would not affect the continued existence of this species as it presently does not occur on public lands in the Resource Area. Ferret surveys at prairie dog towns would still be required prior to any surface disturbing activities. A ferret survey is required if the prairie dog town is over 80 acres for black-tailed prairie dogs and 200 acres for white-tailed and Gunnison's prairie dogs. If the prairie dog town is greater than 1,000 acres, the area would be evaluated for possible reintroduction of black-footed ferrets. There are no prairie dog towns in the resource area that meet the size re-introduction criteria. Current BLM policy is to protect prairie dog towns by avoiding new surface disturbing activities on prairie dog towns and denying control activities on public lands associated with the towns. The prairie dog is an unprotected species and is targeted by varmint hunters for recreation.

Determination: No Affect

DRMP Analysis: Same. In addition, a surface use and occupancy restriction to protect prairie dog towns states that no surface occupancy or surface disturbing activities would be allowed within the boundary of known prairie dog towns or towns identified in the future. No prairie dog control would be authorized on public lands except in declared emergency situations involving public health. Exceptions to this restriction would be considered for maintenance of existing projects.

DRMP Determination: No Affect

Birds

AMerican Peregrine Falcon - Falco peregrinus anatum

Status & Presence in Planning Area: The American peregrine falcon breeds locally in mountainous areas; it occurs essentially statewide during migration and in the winter season, but mainly west of the eastern plains. Key habitat areas are nest sites (eries) and their vicinities, including both those that are currently occupied and historic ones that are still suitable for the species. In New Mexico, the breeding territories of peregrine falcons center on rocky, steep cliffs that are in wooded/forested habitats near water. This species prefers elevations from 6,500 to 8,600 feet but may be found from 3,500 to 9,000 feet.

Potential nesting habitat occurs along a portion of the Rio Bonito at Fort Stanton, but no peregrine falcon eries have been observed.

Endangerment Factors: Habitat loss and disturbance. The loss of riparian habitat is particularly applicable as these areas are preferred foraging areas.

Analysis: Protection and improvement of riparian/wetland habitat is a major Bureau initiative. Riparian/wetland areas at Fort Stanton are being managed to improve the ecological condition and function of these areas. Riparian areas are being improved to benefit peregrine falcons that may use the Rio Bonito at Fort Stanton. Recreational activities along the Rio Bonito are limited to hiking, hunting and fishing, but the amount of visitation in this area is very low due to limited vehicular access. The operation of Sierra Blanca Regional Airport, located on a large mesa south of the Rio Bonito, poses no threat to the falcon or its habitat. There are no major surface-disturbing activities proposed, or authorized, that would affect potential nesting sites. The Fort Stanton area is closed to mineral entry, no oil and gas exploration activities are allowed. "Because western temperate peregrines eat a large variety of birds, can **fly** great distances to find prey, and can raise broods where specific prey species are seemingly scarce, fluctuations in prey populations are unlikely to be significant." (Addendum to American Peregrine Falcon Recovery Plan 1993). Activities in the planning documents would not affect this species.

Determination: Not Likely to Adversely Affect and formal consultation is not necessary.

DRMP Analysis: Same. In addition, Fort Stanton is designated as an Area of Critical Environmental Concern with the following management prescriptions. Fort Stanton would remain withdrawn from the general mining laws, and closed to the disposal of leasable minerals and to the leasing of oil and gas. Major rights-of-way would be excluded. Livestock grazing would be considered to the extent it would be used as a tool to accomplish management objectives. Salt cedar treatments would be conducted. Recreational activities would be subordinate to the management of riparian and wildlife resources. Camping would not be allowed within 100 feet of the Rio Bonito and Salado Creek. OHV use would be limited to designated road and trails. Streambank stabilization structures, native riparian plantings, riparian pastures, salt cedar control, and spring and drainage protection measures would be implemented.

DRMP Determination: Not Likely to Adversely Affect and formal consultation is not necessary.

Northern Aplomado Falcon - *Falco femoralis septentrionalis*

Status & Presence in Planning Area: The historic range of the northern aplomado falcon included Hildago, Grant, Luna, Sierra, Dona Ana, Otero, Eddy, and Lea Counties. It formerly occurred regularly in summer and casually in winter in the southwestern portion of the State and possibly farther east (Tularosa Basin). The last specimen was recorded in 1939, and the last nesting documented in 1952. This species has been occasionally reported in the state, there have been three sightings on the White Sands Missile Range, one on Lake Holloman, and a sighting on either Fort Bliss or WSMR near

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Orogrande (all in Otero County). An extant breeding population in Chihuahua, Mexico, southeast of Juarez may be the source of birds being seen. Essentially, this species had been considered extirpated from New Mexico since 1960 (BISON-M 1995) until the recent sightings in Otero County. Probable causes of their decline include brush encroachment and agricultural development which have destroyed much of the grassland required by this falcon (Hector 1987) and pesticide contamination.

Endangerment Factors: Brush encroachment, excessive livestock grazing and agricultural development which destroys grassland habitat required by this species.

Analysis: There are no known records of this species having occurred on public lands in the Roswell Resource Area. There are no designated critical habitat areas in the Resource Area. Specific surveys for the Aplomado falcon have not been conducted. According to the historical distribution map of 1900 contained in the recovery plan for this species, the falcon would not have inhabited the Resource Area (USFWS 1990). Based on current information on occurrence, the likelihood of its presence in the Resource Area is remote. Activities in the planning documents would not affect the continued existence of this species as it presently does not occur on public lands in the Resource Area.

Determination: No Affect

DRMP Analysis: Same

DRMP Determination: No Affect

Interior Least Tern - Sterna antillarum athalassos

Status & Presence in Planning Area: This species nests on shorelines and sandbars of streams, rivers, lakes, and man-made water impoundments. New Mexico breeding records began in the early 1950's and are centered around Bitter Lake National Wildlife Refuge, Chaves County. The species breeds regularly at Bitter Lake National Wildlife Refuge (BLNWR) where it was first recorded in 1949. BLNWR is considered liessential" tern breeding habitat in the state. Sporadic observations of least terns have been recorded elsewhere in the Pecos River Valley and in the Rio Grande Valley at Bosque del Apache NWR, Socorro County. The tern may occur on public lands in Chaves County along the Pecos River as there are suitable nesting habitat on sites that are sandy and relatively free of vegetation (alkali flats). Other potential habitat sites are any saline/alkaline/gyp playa that occasionally has water. There are about forty-four potential sites throughout the resource area.

Endangerment Factors: Channelization, irrigation, and the construction of reservoirs and pools have contributed to the elimination of much of the tern's nesting habitat. Unpredictable flow patterns below reservoirs can pose problems for nesting terns. Increased human recreation on river sandbars threaten nesting terns including the use of recreational vehicles in nesting habitat.

Analysis: The only known nesting habitat in the Roswell Resource Area is located on the BLNWR. This is a very small population with only a few nesting terns. There are no known active nesting sites on public lands in the Resource Area at this time. Specific surveys of potential habitat along the Pecos River and playas for nesting least terns have not been conducted. Surveys were conducted in specific areas associated with specific projects, such as major pipelines crossing the Pecos River. Recent protocol surveys for the MAPCO and Diamond Shamrock pipelines were negative. Activities in the planning documents that may impact the species and its habitat include any surface disturbing activities of alkali flats and sand bars associated with the Pecos River and floodplain, such as major rights-of-way and OHV use. Sitespecific surveys would be required by the BLM for any actions proposed in these habitat types. Avoidance of potential habitat or timing stipulations to avoid nesting periods would be required as a condition of approval for any surface disturbing activities in potential nesting habitat.

Determination: Not Likely to Adversely Affect and formal consultation is not necessary, except for oil and gas development on existing leases; the determination is May Adversely Affect and formal consultation is necessary.

DRMP Analysis: Same. In addition, the following surface use and occupancy restrictions were developed to protect streams, rivers, floodplains, and playas and alkali lakes. No surface occupancy would be allowed within floodplains or within up to 200 meters of the outer edge of 100-year floodplains (See Appendix 3, AP3-8). No surface occupancy would be allowed within up to 200 meters of playas or alkali lakes (See Appendix 3, AP3-8). Produced water disposal pits on public lands would not be allowed west of the Pecos River, within 100-year floodplains or within 200 meters of drainages or springs. Lands that may provide potential habitat for least tern are identified for potential acquisition. OHV designations for the ACECS, Pecos River floodplain, playas and alkali lakes include a combination of closed to OHV use and limited to designated roads/trails.

DRMP Determination: Not Likely to Adversely Affect and formal consultation is not necessary, except for oil and gas development on existing leases; the determination is May Adversely Affect and formal consultation is necessary.

Brown Pelican - Pelicanus occidentalis

Status & Presence in Planning Area: The brown pelican occupies the coastal shorelines of eastern Mexico and Texas. However, these migrants have been known to move inland to other larger bodies of water. This species has been observed at Bitter Lake National Wildlife Refuge. The bird has not been known to occupy any public land within the Roswell Resource Area.

Endangerment Factors: None

Analysis: Activities in the planning documents would have no affect on this species or it's habitat.

Determination: No Affect

RMP Analysis: Same

RMP Determination: No Affect

Southwestern Willow Flycatcher - Empidonax trailii extimus

Status & Presence in Planning Area: In New Mexico, the Southwestern willow flycatcher occurs statewide from early May through mid-September and inhabits riparian areas. Nesting habitat includes shrubs and trees in willow thickets and deciduous woodlands along riparian areas. This species is known to breed in the Hondo Valley about thirty miles from Fort Stanton. Because of riparian habitat improvements at Fort Stanton, several miles of the Rio Bonito may be suitable habitat, but no southwestern willow flycatchers have been observed nor are there areas proposed as critical habitat at Fort Stanton. This species has not been reported by the U.S. Forest Service in their standard protocol surveys conducted adjacent to Fort Stanton. Scattered suitable habitat also occurs along the Pecos River in DeBaca and Chaves County but the only sightings have been on the Bitter Lake National Wildlife Refuge. Data obtained from the BLNWR indicate three sightings of migrants in two years. One sighting was made about six miles north of the area of analysis in midMay 1995, the other two at the the Refuge Headquarters in mid-September 1995 and late-May 1996 (BLNWR 1996). Other sightings in southeast New Mexico include single observations at Rattlesnake Springs, Sifting Bull Falls and an area southeast of Artesia (West 1996). Single observations of migrant flycatchers were made during a tamarisk control study conducted near Artesia conducted from 1993 - 1995; none were observed in 1995 and two were observed in 1994.

Endangerment Factors: Habitat loss through water developments, excessive livestock grazing, recreational use, nest parasitism by the brown-headed cowbird, and invasion of riparian habitat by exotics such as Russian olive and saitedar.

Analysis: Public land along the Pecos River total about 1,400 acres and is predominately salt cedar with scattered cottonwood trees and seep willow. Protocol surveys will be conducted by the New Mexico Natural Heritage Program during 1996/97 through challenge cost share funds with the BLM to determine presence or absence of the flycatcher. Recent surveys conducted for a major pipeline revealed no occurrences along the Pecos River at the proposed crossing (T. 6 S., R. 26 E., Section 28). Potential impacts from surface disturbing activities along the Pecos River may impact habitat. Prior to any activities, surveys would be required by the BLM to determine the location of potential nesting sites in the vicinity of a proposed action. Site-specific evaluations would be conducted to mitigate any potential threats and may include avoidance of potential habitat or timing restrictions to avoid nesting periods.

At Fort Stanton, the riparian habitat along the Rio Bonito is being managed to protect the riparian resource from surface disturbing activities and excessive livestock grazing through fencing and timing restrictions. The improved riparian habitat may well be increasing potential habitat for the flycatcher, although none have been observed to date. In addition, the BLM recently acquired about 1,200 acres of riparian habitat along the Rio Bonito below Fort Stanton. The management objectives are to protect and enhance the riparian and aquatic habitat similar to what has been accomplished on the Rio Bonito at Fort Stanton. The cumulative improvements of riparian habitat along the Rio Bonito on Fort Stanton and the acquired lands are expected to provide additional habitat in this area. Activities in the planning documents would have no adverse affect on this species or it's habitat.

Determination: Not Likely to Adversely Affect and formal consultation is not necessary.

DRMP Analysis: Same. In addition, the following surface use and occupancy restrictions were developed to protect streams, rivers, floodplains, and playas and alkali lakes. No surface occupancy would be allowed within floodplains or within up to 200 meters of the outer edge of 100-year floodplains (See Appendix 3, AP3-8). Produced water disposal pits on public lands would not be allowed west of the Pecos River, within 100-year floodplains or within 200 meters of drainages or springs. OHV designations for the ACECS, Pecos River floodplain, playas and alkali lakes include a combination of closed to OHV use and limited to designated roads/trails.

DRMP Determination: Not Likely to Adversely Affect and formal consultation is not necessary.

Bald Eagle - *Haliaeetus leucocephalus*

Status & Presence in Planning Area: In New Mexico, the majority of bald eagles occur near water resources; although, upland areas between the Pecos Valley and the

Sandia, Manzano, Capitan, and Sacramento Mountains also support wintering eagles. In New Mexico, the bald eagle migrates statewide and winters from the northern border south to the middle Pecos and Canadian Valleys. The species is occasionally observed elsewhere in the state during the summer. Bald eagles are known to occur in the north-west portion of the Roswell Resource Area and along the Rio Bonito and Pecos River drainages, primarily during the winter months of November through March.

Endangerment Factors: Loss of habitat; human disturbance; illegal shooting, poisoning, trapping; electrocution; lead contamination of prey; and pesticide poisoning. Habitat loss for both breeding and wintering bald eagles has been associated with land development and human activity in breeding and wintering habitats.

Analysis: There are no known breeding habitats in the Roswell Resource Area. Riparian areas on public land along the Pecos are being protected for wintering bald eagles; powerline construction incorporate designs to eliminate raptor electrocution; and timing stipulations for surface disturbing activities in known occupied wintering' areas to prevent undue harrassment. Although it is against the law to harass, shoot, poison, and trap eagles on public lands, the BLM can only reiterate the federal laws protecting eagles, and would actively investigate and prosecute cases of taking eagles on public land in coordination with the USFWS. Activities in the planning documents would have no affect on this species or it's habitat.

Determination: No Affect

DRMP Analysis: Same

DRMP Determination: No Affect

Fish

Pecos Gambusia - Gambusia nobilis

Status & Presence in Planning Area: This species is endemic to the Pecos River Basin in southeastern New Mexico and western Texas. Historically, Pecos gambusia occurred as far north as the Pecos River near Fort Sumner, New Mexico, and south to Fort Stockton, Texas. However, recent records indicate that its native range is restricted to sink-holes or springs and their outflows, on the west side of the Pecos River in Chaves and Eddy Counties, New Mexico, and in isolated springs and their outflows on the west side of the Pecos River in the Trans-Pecos region near Balmorra and Fort Stockton, Texas. In spite of population declines, the species remains locally common in a few areas of suitable habitat. In New Mexico, populations are present on the Bitter Lake National Wildlife Refuge, the Salt Creek Wilderness Area (both Chaves County), and in Blue

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Spring in Eddy County. These areas constitute the key habitat of the species in New Mexico. An introduced population also inhabits a series of artificial pools at the Living Desert State Park near Carlsbad (USFWS 1982; NMDGF 1988; Sublette et al. 1990; BISON-M 1995). On the Refuge, this species is primarily restricted to springs and sink-holes in the Lake St. Francis RNA.

Endangerment Factors: Loss or alteration of habitat (periodic dewatering) and introduction of exotic fish species (mosquitofish).

Analysis: Potential impacts to habitat may occur from surface disturbing activities within the floodplain of the Pecos River. Oil and gas exploration and development, particularly those on existing leases prior to any lease stipulations, may impact habitat if not adequately mitigated. Major rights-of-way, such as pipeline crossings or highway reconstruction, may increase sedimentation of the river. 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. Oil and gas wells administered by the BLM which are not directly associated with the river, but could potentially affect the river (i.e. development in drainages leading to the Pecos River, etc.) are dealt with on a case-by-case basis. 43 CFR Part 3101.1-2 gives the BLM authority to move a well site up to 200 meters or delay it for up to 60 days. With leases issued prior to the RMP and/or leases held by a producing well, compliance measures are done on a routine basis. These compliance measures include ensuring all applicable laws, off-shore oil and gas orders, stipulations, and/or mitigation measures are being implemented by the respective oil company for a particular well. If a company is found to be in noncompliance, an Issue of Noncompliance (INC) is sent to the company and they must address whatever problem or problems exist. Activities in the planning documents would have no effect on this species or its habitat, provided that mitigation measures required by the BLM are applied to protect habitat. Site-specific evaluations would be conducted on a case-by-case basis at which time consultation with the USFWS would be initiated as appropriate.

Determination: Not Likely to Adversely Affect and formal consultation is not necessary, except for oil and gas development on existing leases in proximity to BLNWR; the determination is May Adversely Affect and formal consultation is necessary.

DRMP Analysis: Same. In addition, the following surface use and occupancy restrictions were developed to protect streams, rivers, floodplains, and springs and seeps. No surface occupancy would be allowed within floodplains or within up to 200 meters of the outer edge of 100-year floodplains (See Appendix 3, AP3-8). No surface occupancy would be allowed within up to 200 meters of the source of a spring or seep, or within downstream riparian areas created by flows from the source or resulting from riparian area management (See Appendix 3, AP3-8). Produced water disposal pits on public

lands would not be allowed west of the Pecos River, within 100-year floodplains or within 200 meters of drainages or springs. OHV designations for the ACECs and Pecos River floodplain include a combination of closed to OHV use and limited to designated roads/trails.

DRMP Determination: Not Likely to Adversely Affect and formal consultation is not necessary, except for oil and gas development on existing leases in proximity to BLNWR; the determination is May Adversely Affect and formal consultation is necessary.

Plants

Kuenzier's Hedgehog Cactus - Echinocereus fendieri var. kuenzleri

Status & Presence in Planning Area: Fort Stanton is considered the largest known population of the cactus in New Mexico. Surveys have been conducted over Fort Stanton since 1985. The most extensive survey was conducted by the New Mexico Natural Heritage Program in 1991 (DeBruin 1991). The west half of Fort Stanton is considered crucial habitat for the cactus by the BLM, but the area has not been officially designated by the U.S. Fish and Wildlife Service. The New Mexico Heritage Program has established six monitoring sites for the cactus and has gathered several years of demographic and reproductive data and, to a minor extent, impacts of livestock grazing. The New Mexico Energy, Minerals and Natural Resources Department has established three study areas and has been conducting a study to determine impacts to the cactus from livestock grazing. At this time, there is no statistically significant difference between the three study plots, and the study will be conducted for several more years (pers. com. Lightfoot, NMEMNRD, 1995). Ongoing studies require continued livestock use of certain pastures to determine grazing impacts to the cactus.

Endangerment Factors: Potential impacts include direct trampling of the plants and reduction of thermal cover around individual cacti through grazing.

Analysis: An analysis of potential impacts to the cactus from livestock grazing through vegetative sale contracts was conducted in the September 1995 Fort Stanton Management Framework Plan Amendment (EA-NM-066-95-050). The MFPA was reviewed by the USFWS (Consultation # 2-22-95-1-313) with their concurrence on the "not likely to adversely affect" determination with the proposed stocking levels. Due to the low stocking rates and strategic locations of water developments, there would be no significant impacts to the population from livestock grazing. Activities in the planning documents would have negligible impacts on this species or its habitat, provided BLM mitigation measures are applied to protect habitat.

Determination: Not Likely to Adversely Affect and formal consultation is not necessary.

DRMP Analysis: Same. In addition, Fort Stanton is designated as an ACEC with the following management prescriptions. Fort Stanton would remain withdrawn from the general mining laws, and closed to the disposal of leasable minerals and to the leasing of oil and gas. Major rights-of-way would be excluded. Livestock grazing would be considered to the extent it would be used as a tool to accomplish management objectives. Recreational activities would be subordinate to the management of wildlife resources. OHV use would be limited to designated road and trails.

DRMP Determination: Not Likely to Adversely Affect and formal consultation is not necessary.

B. Federal Threatened Species

Birds

Mexican Spotted Owl - Strix occidentalis lucida

Status & Presence in Planning Area: The Mexican spotted owl occupies mountainous areas statewide. This subspecies has been recorded in the Sacramento and Guadalupe Mountains. Spotted owls typically inhabit canyons, forests, pine-oak woodlands, and riparian areas and have been documented using canyons off of mesas, typically associated with conifer stringers (BISON-M 1995). Nesting habitat is primarily mature montane forests found on U.S. Forest Service lands in the Lincoln National Forest. There is no potential habitat of this type at Fort Stanton, which is the closest area to typical nesting habitat in the Roswell Resource Area, and spotted owls have not been observed. Activities in the planning documents would have no effect on this species or its habitat.

Endangerment Factors: None (BLM-administered lands)

Analysis: Spotted owl habitat is not present on public lands administered by the BLM; therefore, land use activities would have no impact to this species on public lands.

Determination: No Affect

DRMP Analysis: Same

DRMP Determination: No Affect

Fish

Pecos Bluntnose Shiner - Notropis simus pecosensis

Status & Presence in Planning Area: Historically, the Pecos bluntnose shiner inhabited the mainstream of the Pecos River from Santa Rosa downstream to near Carlsbad, New Mexico, and presumably south to its confluence with the Rio Grande in Coahuila, Mexico. However, this subspecies was not recorded south of Carlsbad, NM, or in Texas. Currently, the subspecies is restricted to the Pecos River from the Fort Sumner area southward locally to the vicinity of Artesia, and seasonally in Brantley Reservoir (NMDGF 1985; USFWS 1992). There are two designated critical habitat areas on the Pecos River within the Resource Area. The first begins about ten miles south of Fort Sumner, then downstream about sixty-four miles to a point about twelve miles south of the DeBaca/Chaves county line. The second area is located from a point from Highway 31 east of Hagerman, NM, south to Highway 82 east of Artesia, NM.

Endangerment Factors: Loss or alteration of habitat (periodic dewatering) and introduction of non-native fish species of the Pecos River (Arkansas River shiner).

Analysis: Potential impacts to habitat may occur from surface disturbing activities within the floodplain of the Pecos River. Oil and gas exploration and development, particularly those on existing leases prior to any lease stipulations, may impact habitat if not adequately mitigated. Major rights-of-way, such as pipeline crossings or highway reconstruction, may increase sedimentation of the river. 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. Stream desiccation is the main reason for the decline of the Pecos bluntnose shiner in the Pecos River (Hatch et al 1985). The BLM has no authority for maintenance of water levels within the Pecos River or its tributaries. However, various types of pollution entering the Pecos River are possible from illegal oil and gas development or operation. The various types of pollution are likely to have an indirect effect on the species in the Pecos River drainage as noted by Brooks et al. (1991). Oil and gas wells administered by the BLM which are not directly associated with the river, but could potentially affect the river (i.e. development in drainages leading to the Pecos River, etc.) are dealt with on a case-by-case basis. 43 CFR Part 3101.1-2 gives the BLM authority to move a well site up to 200 meters or delay it for up to 60 days. With leases issued prior to the RMP and/or leases held by a producing well, compliance measures are done on a routine basis. These compliance measures include ensuring all applicable laws, off-shore oil and gas orders, stipulations, and/or mitigation measures are being implemented by the respective oil company for a particular well. If a company is found to be in noncompliance, and Issue of Noncompliance (INC) is issued to the company and they must remedy whatever problem or problems exist. Activities in the planning documents would have no effect on this species or its habitat, provided mitigation measures required by the BLM are applied to protect

habitat. Site-specific evaluations would be conducted on a case-by-case basis at which time consultation with the USFWS would be initiated as appropriate.

Determination: Not Likely to Adversely Affect and formal consultation is not necessary, except for existing oil and gas development on existing leases; the determination is May Adversely Affect and formal consultation is necessary.

DRMP Analysis: The designation of the 6,400-acre North Pecos River ACEC includes a portion of designated critical habitat for the Pecos bluntnose shiner with the following management prescriptions. About 2,080 acres of federal mineral would be closed to future oil and gas leasing. About 2,120 acres would be leased with No surface Occupancy lease stipulation. About 4,200 acres of federal minerals would be closed to the disposal of salable minerals and the leasing of solid minerals. Public lands within the ACEC would be designated as a right-of-way avoidance area. About 3,040 acres would be acquired if opportunities arise. Public grazing leases would be adjusted to improve riparian habitat. Salt cedar control would be conducted. OHVs would be limited to designated roads and trails. No minnow seining area would be designated. In addition, the following surface use and occupancy restrictions were developed to protect streams, rivers, floodplains, and springs and seeps. No surface occupancy would be allowed within floodplains or within up to 200 meters of the outer edge of 100-year floodplains (See Appendix 3, AP3-8). No surface occupancy would be allowed within up to 200 meters of the source of a spring or seep, or within downstream riparian areas created by flows from the source or resulting from riparian area management (See Appendix 3, AP3-8). Produced water disposal pits on public lands would not be allowed west of the Pecos River, within 100-year floodplains or within 200 meters of drainages or springs. OHV designations for the ACECs and Pecos River floodplain include a combination of closed to OHV use and limited to designated roads/trails.

DRMP Determination: Not Likely to Adversely Affect and formal consultation is not necessary, except for existing oil and gas development on existing leases; the determination is May Adversely Affect and formal consultation is necessary.

C. Federal Proposed Species

Arkansas River Shiner - Notropis simus

Status & Presence in Planning Area: The Arkansas River Shiner is a native of the Canadian River drainage in northeastern New Mexico. The population occurring there is designated "Proposed Endangered." However, the population occurring in the Pecos River drainage is introduced and is not being considered for listing. There are no public lands along the Canadian River within the Resource Area, although federal mineral

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estates are found along the river subject to leasing. The species occupies the Pecos River between Fort Sumner and Carlsbad. This species inhabits shallow, often turbid channels of the major streams where it congregates on the downstream side of large sand ridges. The shiner is not considered endangered in the Pecos River by the USFWS due to its introduction into the system. The proposed rule published in 59 FR 39532, August 3, 1994 states, "A non-native, introduced population occurs in the Pecos River in New Mexico; however, protection for this population is not under consideration."

Endangerment Factors: None (BLM-administered lands)

Analysis: The federal mineral estate covers about nine miles of the Canadian River downstream from Ute Lake. There are no oil and gas leases on those mineral estates at this time. Activities in the planning documents would have no affect on this species or its habitat.

Determination: No Affect

DRMP Analysis: The lands along the Canadian River in Quay County are private, but there are about 12,200 acres of federal minerals underlying private lands along the Canadian River. The mineral estate is not currently leased, and would not be offered for sale to protect habitat for the Arkansas River shiner.

DRMP Determination: No Affect

D. Federal Candidate Species

Section 7 consultation is not required for candidate species. These analyses are presented as a disclosure of activities that may impact candidate species.

Mammals

Swift Fox - Vulpes velox

Status & Presence in Planning Area: The swift fox historical range includes eastern New Mexico where it inhabits the short, mid-, and mixed grass prairie with gently rolling hills. Swift fox prefer habitat with sparse vegetation. Areas on the Caprock, grasslands bordering Mescalero Sands, and the Pecos River constitute preferred habitat in the Roswell Resource Area. The Pecos River serves as an arbitrary boundary for the range of this species in the Resource Area and is believed to be a hybrid zone between the swift fox and kit fox. Swift fox would typically be found east of the Pecos River, and the kit fox would occupy the habitats to the west (pers. corn. Schmitt, NMDGF, 1995). Den areas have been found on public lands during a survey of a major pipeline in the Mescalero Sands area but could not be confirmed as swift fox dens.

Endangerment Factors: Predator control practices, over harvest, and habitat destruction.

Analysis: Based on the rare nature of the swift fox and the lack of recent confirmed sightings, it is unlikely that any BLM-authorized actions would adversely affect this species. The USFWS reviewed and commented on the 1993 Environmental Assessment covering the Roswell District Animal Damage Control program. They addressed concerns over the swift fox in their response dated November 23, 1993 (Cons. # 2-22-94-1-037). The concerns were addressed by the BLM and mitigation measures were incorporated into the final BLM/APHIS Animal Damage Control Plan. The measures include the identification of the area east of the Pecos River as swift fox range with restricted control, the use of conventional control methods other than M-44 devices in the area, inspection of steel traps at least three times per week, the release of all non-target species provided they are capable of self-maintenance, and the use of pan tension devices which exclude small non-target species. Any future surface disturbing activities that would possibly result in the loss of identified active den sites could be considered a direct, adverse impact unless mitigation measures required by the BLM are applied to avoid disturbance or destruction of den sites.

Determination: Not Likely to Adversely Affect

DRMP Analysis: Same

DRMP Determination: Not Likely to Adversely Affect

Birds

Mountain Plover - Charadrius montanus

Status & Presence in Planning Area: Mountain plovers are mainly a species of the high plains and semi-desert regions of the western United States. Mountain plovers prefer flat, short-grass prairie and tend to avoid taller grasses and hillsides (Graul 1975). Suitable habitat often occurs in areas intensively grazed. This species also occupies prairie dog colonies, particularly in mid- and tall-grass prairie ecosystems. Migrants occasionally occur on dry mudflats and shorelines of dry reservoirs (Andrews and Righter 1992).

Endangerment Factors: Habitat destruction by conversion of prairie to agricultural cropland; decline of prairie dog towns.

Analysis: The BLM has delineated potential nesting areas west of Roswell but surveys have not been conducted for this species due to its low priority compared other listed species that require attention. Impacts from any surface disturbing activities in potential habitat may impact the species and habitat. From what is known, intensely grazed areas seem to be preferred nesting habitat. Current BLM policy does not endorse intensive grazing on public lands. In reference to prairie dog towns, current BLM policy is to protect prairie dog towns by avoiding new surface disturbing activities on the towns and denying control activities on public lands associated with the towns. Surveys and studies have been planned to determine the location of nesting sites and possible grazing management schemes to enhance identified potential habitat in the Resource Area for mountain plover. Site-specific evaluations would be conducted to mitigate any potential threats and may include avoidance or timing restrictions within the delineated habitat area.

Determination: Not Likely to Adversely Affect

DRMP Analysis: Same. In addition, a surface use and occupancy restriction to protect prairie dog towns states that no surface occupancy or surface disturbing activities would be allowed within the boundary of known prairie dog towns or towns identified in the future. No prairie dog control would be authorized on public lands except in declared emergency situations involving public health. Exceptions to this restriction would be considered for maintenance of existing projects. No surface occupancy would be allowed within up to 200 meters of playas or alkali lakes (See Appendix 3, AP3-8). OHV designations for the ACECS, playas and alkali lakes include a combination of closed to OHV use and limited to designated roads/trails.

DRMP Determination: Not Likely to Adversely Affect

Fish

Pecos Pupfish - Cyprinodon pecosensis

Status & Presence in Planning Area: 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 the gypsum sinkholes on Bitter Lake National Wildlife Refuge, 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 Pecos River, this pupfish is most often found in backwater areas and side pools that lack sunfish or other predators (NMDGF 1988; Sublette et al. 1990; BISON-M 1995). The pupfish inhabits the Overflow Wetlands Wildlife Habitat Area adjacent to the Bottomless Lakes State Park.

Endangerment Factors: Habitat loss caused by groundwater pumping and channel alterations, hybridization and/or replacement by the sheepshead minnow, predation by non-native fish species.

Analysis: Potential impacts to habitat may occur from surface disturbing activities at or near springs or seeps. Oil and gas exploration and development and rights-of-way may impact habitat if not adequately mitigated or relocated. 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. In order to protect habitat for the pupfish within the Overflow Wetlands WHA, two fish barriers were constructed to impede migration of sheepshead minnows into the wetlands. About 494 acres of private lands were acquired in 1989 to enhance protection and management of the WHA. Livestock grazing has been cancelled on Allotment 65041. Activities in the planning documents would have no affect on this species or it's habitat, provided mitigation measures required by the BLM are applied to protect habitat. Site-specific evaluations would be conducted on a case-by-case basis.

Determination: Not Likely to Adversely Affect

DRMP Analysis: Same. In addition, the Overflow Wetlands is designated as an ACEC with the following management prescriptions. About 1,040 acres (including the wetland proper, buffers areas and escarpments) would be protected by applying a no surface occupancy restriction to future oil and gas lease, by closing the same acreage to the disposal of salable minerals and to the leasin of solid minerals and withdrawn from entry

under the land laws (including the 1872 Mining law), by designating the same area as closed to OHV use. Major rights-of-way would be excluded. About 3800 acres of land would be acquired if opportunities arise. Public grazing leases would be adjusted. Salt cedar treatments would be conducted. No minnow seining area would be designated. Additional wetland habitat would be developed.

DRMP Determination: Not Likely to Adversely Affect

Aquatic Invertebrates

Pecos *Assiminea* Snail - *Assiminea oecos*

Status & Presence in Planning Area: This species is known to occupy seeps within the Bitter Lake National Wildlife Refuge and a spring at the Roswell Country Club. The snails are usually found on moist earth beside seeps and springs, but never beside standing water. This species may potentially be found in springs and seeps throughout the Roswell Resource Area but recent surveys conducted by the New Mexico Natural Heritage Program have not identified occurrences of this species in springs located on public lands. This species is primarily associated with springs and seeps along Bitter Creek located in the Bitter Lake RNA on the Refuge. It is a true endemic with viable populations protected only on the refuge.

Endangerment Factors: Diminished surface flows at springs and spring runs by artesian pumping, surface disturbing activities at or near springs and seeps, heavy livestock utilization of the water source.

Analysis: As this species has not been found in the surveyed springs on public lands, activities in the planning documents would have no affect on this species. Several springs located in the Pecos River drainage are protected from livestock grazing by fence exclosures. Prior to any surface disturbing activities, the BLM would conduct surveys to determine potential impacts to the springs. In the event of potential impacts to the spring, Title 43 of Code of Federal Regulations, Part 3101.1-2, would allow the BLM to relocate proposed operations up to 200 meters to protect resource values.

Determination: No Affect, except for existing oil and gas development on existing leases; depending on the proximity of the wells to the BLNWR, the determination could be May Adversely Affect and technical assistance from the USFWS may be necessary.

DRMP Analysis: Same. In addition, the following surface use and occupancy restrictions were developed to protect streams, rivers, floodplains, and springs and see . No surface occupancy would be allowed within floodplains or within up to 200 meters of the outer

edge of 100-year floodplains (See Appendix 3, AP3-8). No surface occupancy would be allowed within up to 200 meters of the source of a spring or seep, or within downstream riparian areas created by flows from the source or resulting from riparian area management (See Appendix 3, AP3-8). Produced water disposal pits on public lands would not be allowed west of the Pecos River, within 100-year floodplains or within 200 meters of drainages or springs.

DRMP Determination: No Affect, except for existing oil and gas development on existing leases; depending on the proximity of the wells to the BLNWR, the determination could be May Adversely Affect and technical assistance from the USFWS may be necessary.

Roswell Spring Snail - Pyrgulopsis roswellensis

Status & Presence in Planning Area: This species inhabits clear, free flowing fresh and gypsum waters. The Roswell Spring Snail is known to occur in the Sago Spring system, and a small seepage on the northwest edge of pond Unit 6 on the BLNWR as well as the Roswell Country Club spring, This species may potentially be found in springs and seeps throughout the Roswell Resource Area but recent surveys conducted by the New Mexico Natural Heritage Program have not identified occurrences of this species in springs located on public lands. This species is primarily associated with springs and seeps along Bitter Creek located in the Bitter Lake RNA. It is a true endemic with viable populations protected only on the refuge.

Endangerment Factors: Diminished surface flows at springs and spring runs by artesian pumping, surface disturbing activities at or near springs and seeps, heavy livestock utilization of the water source.

Analysis: As this species has not been found in the surveyed springs on public lands, activities in the planning documents would have no affect on this species. Several springs located in the Pecos River drainage are protected from livestock grazing by fence enclosures. But prior to any surface disturbing activities, the BLM would conduct surveys to determine potential impacts to the springs. In the event of potential impacts to the spring, Title 43 of Code of Federal Regulations, Part 3101.1-2, would allow the BLM to relocate proposed operations up to 200 meters to protect resource values.

Determination: No Affect, except for existing oil and gas development on existing leases; depending on the proximity of the wells to the BLNWR, the determination could be May Adversely Affect and technical assistance from the USFWS may be necessary.

DRMP Analysis: Same. In addition, the following surface use and occupancy restrictions were developed to seeps. No surface occupancy would be allowed within floodplains or within up to 200 meters of the outer edge of 100-year floodplains (See Appendix 3,

AP3-8). No surface occupancy would be allowed within up to 200 meters of the source of a spring or seep, or within downstream riparian areas created by flows from the source or resulting from riparian area management (See Appendix 3, AP3-8). Produced water disposal pits on public lands would not be allowed west of the Pecos River, within 100-year floodplains or within 200 meters of drainages or springs.

DRMP Determination: No Affect, except for existing oil and gas development on existing leases; depending on the proximity of the wells to the BLNWR, the determination could be May Adversely Affect and technical assistance from the USFWS may be necessary.

Koster's Tryonia - Tryonia kosteri

Status & Presence in Planning Area: This species also inhabits in the upper layers of fine substratum within clear, free flowing fresh and gypsum rich waters. Koster's tryonia has been known to occur in the Bitter Creek and Lost River spring system, the Sago Spring system and a small seepage on the northwest edge of pond Unit 6, all on the BLNWR. It is known to have occurred in a spring at the Roswell Country Club, but has not been documented there in the past four years. This species may potentially be found in springs and seeps throughout the Roswell Resource Area but recent surveys conducted by the New Mexico Natural Heritage Program have not identified occurrences of this species in springs located on public lands. This species is primarily associated with springs and seeps along Bitter Creek located in the Bitter Lake RNA. It is a true endemic with viable populations protected only on the refuge.

Endangerment Factors: Diminished surface flows at springs and spring runs by artesian pumping, surface disturbing activities at or near springs and seeps, heavy livestock utilization of the water source.

Analysis: As this species has not been found in the surveyed springs on public lands, activities in the planning documents would have no affect on this species. Several springs located in the Pecos River drainage are protected from livestock grazing by fence enclosures. But prior to any surface disturbing activities, the BLM would conduct surveys to determine potential impacts to the springs. In the event of potential impacts to the spring, Title 43 of Code of Federal Regulations, Part 3101.1-2, would allow the BLM to relocate proposed operations up to 200 meters to protect resource values.

Determination: No Affect, except for existing oil and gas development on existing leases; depending on the proximity of the wells to the BLNWR, the determination could be May Adversely Affect and technical assistance from the USFWS may be necessary.

DRMP Analysis: Same. In addition, the following surface use and occupancy restrictions were developed to protect streams, rivers, floodplains, and springs and seeps. No surface occupancy would be allowed within floodplains or within up to 200 meters of the outer edge of 100-year floodplains (See Appendix 3, AP3-8). No surface occupancy would be allowed within up to 200 meters of the source of a spring or seep, or within downstream riparian areas created by flows from the source or resulting from riparian area management (See Appendix 3, AP3-8). Produced water disposal pits on public lands would not be allowed west of the Pecos River, within 100-year floodplains or within 200 meters of drainages or springs.

DRMP Determination: No Affect, except for existing oil and gas development on existing leases; depending on the proximity of the wells to the BLNWR, the determination could be May Adversely Affect and technical assistance from the USFWS may be necessary.

Plants

Puzzle Sunflower - Helianthus paradoxus

Status & Presence in Planning Area: This species is found along alkaline seeps and cienegas of semi-desert grasslands and the short-grass plains (4,000-7,500 ft.). Plant populations are found both in water and immediately adjacent to water sources where the water table is still high and in good condition. There are three known populations within the Roswell Resource Area, with one location occurring on public land.

Endangerment Factors: Dewatering of riparian-wetland areas where this species is found, surface disturbing activities by oil and gas, rights-of-way, excessive livestock grazing.

Analysis: This species has very spotty distribution in the Roswell Resource Area and is found in only a few areas outside of the Bitter Lake National Wildlife Refuge. A new population was found in 1994 at the Bottomless Lakes State Park growing on the margins of Lea Lake and its outflow. Lloyd's Draw is the only known location on public land. The puzzle sunflower only became evident at this location following a prescribed fire. The only potential impacts to this species at Lloyd's Draw is livestock grazing, but stocking densities are very low and plans to develop watering sources away from the draw would mitigate this activity. Due to the low stocking rates and strategic locations of water developments, there would be no impacts to the population from livestock grazing. Potential habitat also occur within the Overflow Wetlands Wildlife Habitat Area. These wetlands are protected from surface disturbing activities and livestock grazing has been cancelled on Allotment 65041.

Determination: Not Likely to Adversely Affect

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DRMP Analysis: Same. In addition, the following surface use and occupancy restrictions were developed to protect streams, rivers, floodplains, and springs and seeps. No surface occupancy would be allowed within floodplains or within up to 200 meters of the outer edge of 100-year floodplains (See Appendix 3, AP3-8). No surface occupancy would be allowed within up to 200 meters of the source of a spring or seep, or within downstream riparian areas created by flows from the source or resulting from riparian area management (Appendix 3, AP3-8). OHV designations for the ACECs and Pecos River floodplain include a combination of closed to OHV use and limited to designated roads/trails.

DRMP Determination: Not Likely to Adversely Affect

III. Summary

All current planning documents/amendments and site-specific ongoing activities, or projects, have been reviewed for this BA. The primary activities reviewed were Livestock Grazing and Minerals Management as these were the main resources addressed in the planning documents.

The management prescriptions for the various resources found under the Preferred Alternative of the Roswell Resource Area Draft RMP have been reviewed. Potential impacts to special status species and their habitats have been reduced or eliminated. The potential for impacting T/E species remains high for existing oil and gas leases currently held by production. May Adversely Affect determinations were made for riparian and aquatic species associated with existing oil and gas leases along the Pecos River.

On the Pecos River, there is about forty existing oil and gas leases with all or portions of the lease potentially supporting riparian or aquatic resources. Currently, about 6,296 acres are unleased. A small portion of the existing leases have the R-44 stipulation since the stipulation became effective in 1990. Formal consultation would be required for those leases that have existing developments in the floodplain, are planned for development, or lack the Roswell #44 special lease stipulation. The formal consultation process would include impacts to T/E species on developed leases and existing leases proposed for future development.

The pending Environmental Assessment for the Corinne Grace, Pecos River Floodplain Oil and Gas Field Development (EA No. NM-066-96-026) considers impacts to several T/E species within the project area and on the adjacent Bitter Lake National Wildlife Refuge. Consultation has been initiated with the USFWS (Cons. #2-22-94-1028).

For new leases, the Interim Oil and Gas Leasing and Development EA for the Roswell Resource Area (NM-066-95-096) describes screening criteria to delay the leasing of certain areas until leasing decisions are made in the final RMP. The areas identified in the criteria are those where conflicts with oil and gas development may occur. Oil and gas leasing is a discretionary action and nominated parcels may be withheld from leasing when conflicts are identified. Once the RMP leasing decisions have been completed, the screening criteria would no longer be used. Consultation was conducted with the USFWS (Cons. #2-22-96-1-024).

Cumulative impacts from actions authorized under the current land use plans and amendments would be highest on the riparian community along the Pecos River. Activities such as oil and gas exploration and development, rights-of-way, livestock grazing, off-highway vehicle use, and non-BLM regulated actions, primarily agriculture, all contribute to cumulative negative impacts on the scarce riparian community and the

several riparian/aquatic-associated species considered in this BA.

Cumulative impacts are being considered at the activity planning level but would be addressed and alleviated through the Roswell Resource Area RMP.

State, local, or private activities, not involving Federal activities, are not anticipated to dramatically change (increase/decrease) in the Resource Area, particularly oil and gas development, and the livestock industry. These activities, and other activities, would continue on private and State lands. The estimation of cumulative effects of future non-federal actions is difficult to make without knowing what type of actions would be proposed and where they may occur. It is safe to say that urbanization will continue to encroach on wildlife habitat and demands for resources will continue, making the public lands even more significant as preserves for special status species and habitat.

On-going and future actions proposed by the BLM or resource users, that are in compliance with current planning documents, would be evaluated on a case-by-case basis through the environmental assessment process. This would include informal consultation with the U.S. Fish and Wildlife Service as necessary. Impacts to special status species and their habitats would be analyzed, and mitigation developed to provide protection for these species to avoid may affect determinations. In the event a proposed action results in a may adversely affect determination, formal Section 7 consultation would be initiated with the U.S. Fish and Wildlife Service.

Based up on the analyses completed in this document, it is concluded that the actions in the planning documents, excluding oil and gas resources, would not have negative effects upon threatened and endangered species and their habitats located in the Roswell Resource Area. Because of “no affect” and “not likely to adversely affect” determinations, formal Section 7 Consultation, as outlined under the provisions of the Endangered Species Act of 1973, is not required with the U.S. Fish and Wildlife Service for those actions authorized by the BLM under existing planning documents and the Roswell Resource Area RMP.

Formal Section 7 consultation will be requested for the following species with respect to potential impacts from existing oil and gas lease exploration and development activities:

Interior least tem	Federal Endangered
Pecos gambusia	Federal Endangered
Pecos bluntnose shiner	Federal Threatened

Technical assistance will be requested for candidate species potentially affected by oil and gas lease exploratioi and development activities.

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**Addendum to the Biological Assessment
for the 1996 Roswell Resource Area Resource Management Plan
Roswell Resource Area**

September 20, 1996

1. Introduction

This Addendum will update the Biological Assessment (BA) completed on July 8, 1996, and submitted to the U.S. Fish and Wildlife Service (USFWS) on July 9, 1996 (Consultation No. 2-22-95-1-102).

This Addendum includes: (1) an update on land use decisions in the Roswell Resource Area Resource Management plan, (2) necessary changes to land use restrictions or allocations under the Preferred Alternative affecting federally-listed species, (3) recently acquired biological information on the Southwestern willow flycatcher and other species, (4) changes in BLM determinations on the Bald eagle and Arkansas River shiner, and (5) additional information for the Kuenzler's hedgehog cactus and other species as requested by the USFWS. These changes resulted from public comments received on the draft plan, including comments submitted by the USFWS. The proposed plan is expected to be published by late November 1996.

11. RMP Changes

The following bullets are changes made to the preferred alternative of the RMP potentially affecting federally-listed species:

Mitigations of impacts involving moves greater than 200 meters or delays greater than 60 days could result from NEPA analysis. (Also, refer to the introduction to Appendix 3.)

Appendix 3 - The basis for the "200 meter rule" used in the Surface Use and Occupancy Requirements is 43 CFR 3101.1-2, which states that, at a minimum, mitigation measures are deemed consistent with oil and gas lease rights if they do not require "...relocation of proposed operations by more than 200 meters..." The intent of the actions described in this Appendix is to comply with the regulations and allow the relocation of proposed activities to mitigate impacts, but by "no more than 200 meters", without undertaking additional NEPA analysis. The opportunity exists through the NEPA process to design mitigations of impacts that would require relocation greater than 200 meters. The "200 meter rule" simply allows relocation of an activity, such as during onsite meetings prior to APD approval, without the need for detailed NEPA analysis.

The federal mineral estate along the Canadian River in Quay County (totalling about 4,900 acres), would be managed to support protection of habitat for the Arkansas River shiner. Management would include application of the surface use and occupancy requirements (Appendix 3), closure to the leasing of solid minerals, possible closure to the disposal of mineral materials, and restrictions on the exploration for and development of locatable minerals. Restrictions on use would be applied as needed to protect habitat. As a result, the entire range of restrictions may not be applied to every acre of federal mineral estate. These practices could be applied to major tributaries of the Canadian River, as well, if needed to protect shiner habitat.

Riparian/Wetland and Playa Lake Management: Riparian and wetland areas would be managed to achieve an advanced ecological status, except where resource management objectives, including proper functioning condition, would require an earlier successional stage. The objective of management would be to improve riparian and wetland habitat on public lands that is nonfunctioning or functioning at risk, and maintain habitat that is in proper functioning condition. Management would be conducted even if influenced by factors outside of the BLM's control or management, such as flow regulations or channelization, that contribute to unacceptable conditions.

Special Status Species Habitat Management Goal: Provide protection and recovery for all federal and state-listed species. Manage occupied and potential habitat for federal and state-listed species on public land to maintain or enhance populations. Manage habitat for federal candidate species to avoid degrading habitat and further listing by either state or federal governments while allowing for mineral development and production, livestock grazing, and other uses.

Prairie dog towns would be protected from major surface disturbing activities, such as rights-of-way, and road or facility construction. Surface disturbance would not be allowed within prairie dog towns (refer to Appendix 3). Existing populations of prairie dogs would be maintained by not allowing control measures to be conducted in prairie dog towns by APHIS-ADC or grazing allottees. Maintenance of existing developments would be allowed on a case-by-case basis.

The construction of fence enclosures or barriers would be considered in crucial or critical habitat for federal threatened and endangered, federal candidate, or state-listed wildlife and plant species to protect all or portions of occupied habitat, specific populations, or to provide for scientific research on a species and its habitat.

Floodplain Development (For the Roswell Resource Area):

114. If a threat of flooding by the Pecos River occurs during drilling operations,

the Roswell Resource Area Manager will issue a shut-in order. Toxic substances and, possibly, drilling equipment will be removed from the floodplain.

115. A drilling pad will be elevated at least (inches, feet) and surfaced according to Condition of Approval 80.

116. All riparian habitat will be protected according to instructions provided by the Authorized Officer. Trees will not be cut down unless authorized.

117. Self-contained metal tanks are required for floodplain locations.

118. Pits containing oil, tank bottoms or other hydrocarbons, salt water, or any toxic substances will not be allowed in the floodplain.

119. If a salt water flow is encountered, the water will be stored in tanks located outside of the floodplain.

120. Production facilities will be located outside of the floodplain.

121. Flow lines from the well head to production facilities will be buried, if soil conditions permit burial.

122. Special precautions will be taken to reduce damage from flooding:

- a. The well will be equipped with a down-hole shut-in device, rated at working pressure of 1,500 psi;
- b. The well head will be buried below ground in a concrete cellar with a grate over it; or,
- c. Three steel posts will be set in concrete. Horizontal steel cross bars will connect the posts. Heavy gauge chain link fencing will be welded or bolted to the post and cross bars. The V must point upstream or in the direction specified.

123. Chemical toilets will be used instead of latrines,

Camping at Fort Stanton would be managed by permitting "vehicle campers" (those who drive motorized vehicles to a campsite) to drive no more than 100 feet off a BLM-designated road or trail to a campsite.

The BLM would recommend to the New Mexico State Game Commission that Fort Stanton be designated as a special draw hunt area, or a restricted area open only to primitive hunting (bow and arrow or muzzle-loader). Additionally, vehicles would not be allowed off of designated roads or trails to retrieve downed game,

III. Update on Species Accounts

Southwestern Willow Flycatcher - Empidonax trailii extimus

Flycatcher protocol surveys for the Roswell District were initiated by the BLM through challenge cost-share studies with the New Mexico Natural Heritage Program. The surveys began on July 8, 1996 and focused on the Grace Well area along the Pecos River just north of the Bitter Lake National Wildlife Refuge, the Rio Bonito and Salado Creek at Fort Stanton, and the Black and Delaware Rivers in the Carlsbad Resource Area.

The preliminary surveys for the presence of breeding willow flycatchers were negative for the Grace Well area, the Rio Bonito and Salado Creek riparian areas, the Delaware River and Black River. The Rio Bonito and parts of the Delaware River were identified as a potentially suitable stopover habitat, although not prime breeding habitat. The continued development of these areas would not guarantee use of these habitats by the flycatchers, given that willow flycatchers typically do not nest east of the Rio Grande in New Mexico (NMNHP 1996). A copy of this preliminary report is attached.

The reference for the statement that the species is known to breed in the Hondo Valley was taken from a New Mexico Ornithological document which we are unable to locate at this time. Therefore, this statement is retracted from the BA.

IV. Additional Analysis on Species Identified by USFWS

Southwestern Willow Flycatcher - Empidonax trailii extimus

The latest information concerning riparian condition is found in the attached updated Table 102 which replaces Table 102 in the draft RMP/EIS. The table shows the number of stream miles that are in proper functioning condition, at risk, and nonfunctioning. Definitions of these characteristics are attached (GL-3 and GL-4).

The following analysis is presented in reference to current riparian conditions and livestock grazing programs, and its potential adverse effects on nesting habitat for southwestern willow flycatcher.

There are factors that influence our capability to produce change (improve habitat) which are not within BLM control. For example, the condition of the Pecos River riparian area is largely determined by water flows dictated by agricultural demands. This one factor alone has modified the Pecos River more than any other aspect of use affecting the riparian and aquatic habitat.

Along the Pecos River, livestock grazing is self-limiting due to the presence of goldenrod (poisonous to livestock), heavy infestations during the summer and rank condition of alkali

sacaton (not palatable to livestock). Condition of the vegetative community is mostly affected by modified stream flows (Fort Sumner Dam) and the invasion of salt cedar,

There are three ACECs with riparian habitat. The Fort Stanton ACEC is intensively managed with strict controls on grazing. Public lands within the Overflow Wetlands ACEC is essentially closed to grazing, except a small pasture that has a short section of the Pecos River. This pasture is only used seasonally and the grazing lessee has agreed to following season of use recommendations from the BLM. The North Pecos River ACEC is mostly within one grazing allotment. A majority of the allotment is outside of the BLM grazing district and livestock grazing numbers outside of the grazing district are not controlled by the BLM. Nonetheless, the allotment has received several projects to improve riparian habitat conditions. These include pasture development through several miles of fencing and prescribed fire conducted on a regular basis to control salt cedar and improve the riparian community for cottonwood and willow regeneration.

Based on further analysis, a review of the NMNHP preliminary report, and the information provided by the USFWS (Memorandum dated August 29, 1996), the determination for the Southwestern willow flycatcher remain the same.

Determination: **Not Likely to Adversely Affect** and formal consultation is not necessary.

Bald Eagle - *Haliaeetus leucocephalus*

The determinations in the BA were No Affect. It was thought that since there were no breeding or nesting areas within the RA, there would be no significant impacts to the bald eagle from activities authorized by the BLM. There are BLM-authorized activities as stated in the BA that would directly improve habitat for eagles and could be construed as a positive impact. The determination is now changed to recognize this impact.

Determination: **Not Likely to Adversely Affect** and formal consultation is not necessary.

Kuenzier's Hedgehog Cactus - *Echinocereus fendleri* var. *kuenzleri*

Under the Environmental Consequences-Wildlife section of the DRMP, an analyses of promoting a trail system and its impact to the cactus was made with the finding that potential loss of Kuenzier cactus from off-trail riding in critical habitat could potentially occur. Off-trail riding could occur from mountain bike and horseback trail riders. The current situation is that trail riders stay on the established trails already in place and tend not to go off the trail, partly attributable to coordination with wildlife specialists to ensure habitat concerns are addressed during trail designations (versus no designations in which riders can go anywhere they wish), trail signing, trail brochures and patrols. Along

with trail designations are rules of conduct for recreation use on public lands. These are found in Appendix 7 of the DRMP. The potential loss of cactus from illegal off-trail riding incidents is remote but addressed in the DRMP as a potential impact. The potential impacts to the cactus and habitat would be tremendous without the designation of roads and trails and off-highway vehicle restrictions currently in place, and enhanced by management prescriptions for the Fort Stanton ACEC. In addition, primary cactus population locations have been protected by the construction of large exclosures which serve to protect the sites and provide for scientific study.

Determination: **Not Likely to Adversely Affect** and formal consultation is not necessary.

Arkansas River Shiner - Notropis simus

The 12,200-acre figure for federal minerals underlying private lands is for the entire Quay County. About 4,900 acres of federal minerals underly mostly private and some state lands along the Canadian River. Federal mineral leasing along the Canadian River is possible on about 4,640 acres of currently unleased federal minerals. To protect the Canadian River, land use decisions added to the DRMP (see bullet under RMP Changes) were developed. Lands that may be offered for mineral leasing would be subject to the Surface Use and Occupancy Requirements in Appendix 3 of the DRMP. The determination is now changed to recognize this impact.

Determination: **Not Likely to Adversely Affect** and formal consultation is not necessary.

IV. Summary

The determinations for the bald eagle and the Arkansas river shiner have been changed from No Affect to May Affect but Not Likely to Adversely Affect.

The determination for the Southwestern willow flycatcher and Kuenzier's hedgehog cactus remain May Affect but Not Likely to Adversely Affect,

Formal consultation is requested for the Interior least tern, Pecos gambusia, and the Pecos bluntnose shiner. To complete the initiation of formal consultation, additional information that was requested through USFWS Memorandum dated August 29, 1996 (Consultation #2-22-95-1-102) is being provided through a separate document and maps.

*Kristine Johnson, Sr. Research Associate
New Mexico Natural Heritage Program
University of New Mexico, Biology
2500 Yale Blvd. SE
Albuquerque, NM 87131-1091
505-277-1982, fax 505-277-7587
kjohanson@unm.edu*

RECEIVED
AUG 5 5 13 AM '96

31 July, 1996

Dan Baggao
Bureau of Land Management
P.O. Drawer 1857
Roswell, NM 88202

Dear Dan,

Enclosed is a summary of Pat's and my surveys of BLM land earlier in July. In addition to preliminary WIFL surveys, we assess the potential of these as stopover and breeding habitat for WIFLs as well as other Neotropical migrants. As we discussed previously, I think some of these areas offer good potential for migrants in general, whether or not they eventually attract WIFLs.

Having looked at nearly all the lands of interest, I think we can eliminate some areas as clearly unsuitable for breeding or even migrating flycatchers. I've included an accounting of this year's money, an estimated budget for a 2-survey protocol of potentially suitable breeding/migrating WIFL habitat, along with the cost of doing 3-survey protocols of potentially suitable habitat, in case they should be warranted.

I plan to be at the prairie chicken meeting in Oklahoma City in August. Hope to see you there. Please call if you have questions about the report.

Sincerely,



Kristine Johnson
Senior Research Associate

SOUTHWESTERN WILLOW FLYCATCHER HABITAT SURVEYS ON BLM LANDS

Kristine Johnson and Patricia Mehlhop

July, 1996

Between July 8 and July 17, 1996, we surveyed potential southwestern willow flycatcher (*Enipidonax trailii extiniis*) breeding habitat on BLM lands in eastern New Mexico. USFWS protocols (Tibbitts et al. 1994) specify that surveys must be conducted twice, eight days apart, the first being in late June and the second in early July. Although flycatchers that do nest are expected to be still on the nesting grounds later in July, once nesting has begun males tend to reduce singing greatly; thus, response to taped song may go undetected. Due to the timing of funding, it was not possible to adhere to these guidelines in 1996, and thus these results should be considered first as habitat surveys and second as preliminary surveys for the presence of breeding willow flycatchers. We also assessed the areas for their potential as suitable stopover habitat for migrating willow flycatchers as well as habitat for other Neotropical migratory songbirds. We discuss separately each area surveyed.

July 8-IO.Pecos River Floodplain Gas and Oil Development Area, Approximately 3.5 miles on the west side of the river were surveyed on July 8-9 and approximately 1.5 miles on the east side, just north of the Bitter Lakes Refuge boundary, were surveyed on July 9-10. In each case, the habitats were viewed from a vehicle the first day and the areas were then walked the following day. During the walking surveys, tapes of willow flycatcher song were played at all stands of trees, whether or not the stand was deemed suitable for flycatcher breeding.

Much of the river bank (an estimated 60%) is entirely treeless, while thin strings and small patches of saltcedar are present in the other 40%. The tree species comprise about 99% saltcedar, and only those that are present singly are taller than about 2m. Less than 1% of the trees present are willow, and these are less than 1.5m tall and occur in patches less than 1m wide on the bank of the river near the refuge boundary. Surrounding areas are covered primarily with alkali saccatone grass. It is clear that there is no suitable nesting habitat for southwestern willow flycatchers in this section of the river. No flycatchers were detected and none responded to tapes. Although there are other bird species using the area (e.g., meadowlark, mourning dove, barn swallow, redwinged blackbird), this is not a high quality riparian area: there are few trees and vegetation diversity is quite low.

July 10- II - Rio Bonito and Salado Creek Riparian Areas. Again, these areas were viewed from a vehicle on the 10th and walked on the 11th. Tapes were played where trees were present. Approximately 0.5 mi. of the Lower Rio Bonito, going west from the eastern Ft. Stanton boundary, was surveyed. There was considerable willow emerging in this section of the Rio, about 40%, along with about 15% cottonwood, some very large, and about 40% dead saltcedar. The willows are mostly less than 1m in height. This did not appear to be highly desirable breeding habitat for willow flycatchers, but the emergence of willow stands and the efforts at saltcedar control suggest that, with continued management, it may be in the future. No willow flycatchers responded to tapes, nor were any detected singing. At present, this is a very nice riparian area, possibly providing suitable stopover habitat for flycatchers and clearly suitable for use by other Neotropical migrants. We encourage continued management of this area as stopover and breeding habitat for migratory birds.

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The Middle Rio Bonito consists of approximately 2mi. of river extending upstream from the Lower Rio Bonito. There is a gap of riverbank containing no trees that was not surveyed, just upstream from the above-described Lower Rio. The Middle Rio Bonito begins above that gap and continues to the Ft. Stanton upstream boundary, about 2 mi. This area contains scattered cottonwood (30%), juniper (20%), elm (20%), and willow (30%). The willow patches are very small and discontinuous, with only 35-40% of the bank having any trees at all. The bank is steep and eroded and up to 3m deep in places. The Rio was running about 3" deep after a rain, but had been dry the previous day. No suitable willow flycatcher breeding habitat was detected; willow stands were short and very small and the stream was small and runs intermittently. No flycatchers responded to taped song. In spite of the sparsely distributed trees and the depth of the channel, this is a nice small riparian area used by other Neotropical migratory species (black-chinned hummingbird, blue grosbeak, western tanager, Say's phoebe). The area is well worth management efforts aimed at preserving stopover and breeding habitat for Neotropical migrants.

About 0.75 mi. of the Salado Creek riparian area, north of highway 380, was surveyed. This area had a few scattered poplars and some willows planted by the BLM. About 95% of the stream bank was treeless, with a steep, eroded channel. The only trees present were isolated. Although remediation efforts have been initiated here, it is clear that this area has a long way to go before it can be considered riparian habitat. It is clearly unsuitable for willow flycatchers. Trees were so sparsely distributed that there was no point in even playing tapes. Nevertheless, continued remediation efforts could transform this area into suitable habitat for migratory birds, particularly if stands of trees can be established.

July 14, Upper Rio Bonito The Upper Rio Bonito (approximately 3 miles) was surveyed on July 14. This area comprises about 35% old tree willow (<2m high) and cottonwood and 65% recovering meadow and shrub. In the upper half of the reach the shrubs are about 65% tree willow of <2m in height, in the form of stringer rows. The lower part grades to tree and coyote willow and cottonwood, 3m in height. Two small willow stands that had died back have resprouted and offer potential for future habitat. In open areas about 10% of the cover is shrub willow. In a few years this site may hold willow stands several meters wide and currently has potential for willow flycatcher migratory habitat. In 3-10 years it could offer good, although not excellent, willow flycatcher breeding habitat. No willow flycatchers or obligate riparian species were detected in this area.

July 16, Delaware River The Delaware River was surveyed on July 16. The river flows from the Texas border to an old destroyed dam in a series of pools connected by a narrow channel. On one or both sides, the floodplain is contained by 10- 15 foot high cliffs. The width of the floodplain is 30-50m, offering the only potential for willow flycatcher habitat. The tree willow has old growth structure and offers little subcanopy for nesting willow flycatchers. Seepwillow forms stringers between the tree willows and the river and dense stands in open canopy bars. However, it is generally 4-5 feet high, apparently too short for nesting SW willow flycatchers. The apparent absence of song sparrows and yellow-breasted chats attests to an insufficient shrub

component here. However, the habitat may be suitable for stopover by migrating SW willow flycatchers and other Neotropical migrants. The short reach upstream from the dam to the sharp south bend in the river may offer the best potential habitat in the future because it is less contained. If it is flooded regularly, the habitat structure could become suitable. Cattle loiter in the seepwillow stands when watering, keeping them more open than natural. There is a small patch of Fremont cottonwood down stream of the dam at the point where a flume enters the river from the NW. A yellow-breasted chat was detected there. Potential migration habitat should improve once cattle are removed, scheduled for 1998. No willow flycatchers were detected.

The Delaware River was also spot checked downstream from the gas pipeline. Immediately downstream appeared the same as the site upstream to the flume. Where the highway crosses the Delaware there are a few small patches of tree willow downstream from the bridge. These patches do not appear to have a subcanopy component, making it unlikely breeding habitat for the flycatchers. From the confluence with the Pecos upstream to about 50 m. above the railroad bridge crossing, dense saltcedar grows nearly to the river edge and does not offer suitable nesting habitat for flycatchers. None was detected.

July 15, Black River The Black River was surveyed on July 15. The low stature and low density of the riparian vegetation from the headwaters to ~1.3 mi. downstream does not offer suitable nesting habitat at this time. The area downstream needs additional survey to confirm that it too is currently unsuitable. The entrenchment of the river appears to preclude much overbank flooding, which suggests that a thriving willow habitat will not occur in the future. If height and density of the shrubs and small trees increases, the suitability of nesting habitat may increase in the future. Although currently not good breeding habitat for willow flycatchers, this reach may offer very good migratory stopover habitat for willow flycatchers and other Neotropical migrants. It merits mistnet survey in spring and fall and singing male survey in spring. No willow flycatchers were detected.

Conclusions Preliminary surveys suggest that there are no willow flycatchers nesting in any of the surveyed areas. This tentative conclusion will be confirmed using protocol surveys during the next breeding season. Several areas, the Upper and Lower Rio Bonito and parts of the Delaware Rivers, although not prime breeding habitat, appear to be potentially suitable stopover habitat for the flycatchers and could hold potential as breeding habitat if willow stands develop further. With continued management efforts aimed at encouraging this species, these areas could develop into fine habitat for willow flycatchers. However, even continued development of these areas would not guarantee use of these habitats by the flycatchers, given that willow flycatchers typically do not nest east of the Rio Grande in New Mexico. It is important to note that these areas are being used by a variety of other Neotropical migratory songbirds, currently an important focus of conservation concern due to loss of stopover as well as breeding habitat. We encourage the BLM to continue their management efforts and define those efforts broadly to include Neotropical migrants other than the willow flycatcher. We also recommend surveys of all the avifauna in the well developed riparian areas, during the migration as well as breeding seasons, to guide further management efforts in these potentially important riparian areas.

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Reference

Tibbits, TJ, MK Sogge, & SJ Sferra. 1994. A Survey protocol for the Southwestern wflow flycatcher (*Enipidonax traillii extiniitv*). Technical report NPS/NAUCPRS/NRTR-94/04.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

P.O. Box 1306

Albuquerque, New Mexico 87103

In Reply Refer To:
R2/ES-SE

MAY 14 1997

Cons. #2-22-96-F-102

Memorandum

To: Area Manager, Roswell Resource Area, Bureau of Land Management,
Roswell, New Mexico

From: ^{ding} Regional Director, Region 2, U.S. Fish and Wildlife Service, Albuquerque,
New Mexico

Subject: Biological Opinion on the Roswell Resource Area Resource Management
Plans

This is in further response to your July 9, 1996, request for formal Section 7 consultation under the Endangered Species Act of 1973 (Act), as amended. The request concerned the effects of programs implemented under current resource management plans for the Bureau of Land Management (BLM), Roswell Resource Area (RRA), and programs proposed to be implemented under the Roswell Resource Area Draft Resource Management Plan/Environmental Impact Statement (Roswell DRMP/EIS) (BLM 1994). This biological opinion addresses effects of those plans on the Pecos bluntnose shiner, Pecos gambusia, and interior least tern.

This consultation covers a broad spectrum of management activities that are guided by the Roswell resource management plans. In some cases, it was necessary to analyze specific projects and/or discuss them in the biological opinion to help evaluate the overall effectiveness of plan-level guidance. This plan-level consultation, however, does not eliminate the need for BLM to conduct future action-specific biological assessments pursuant to 50 CFR §402.12 to determine if any actions are likely to adversely affect listed or proposed species or adversely modify critical habitat.

Consultation History

The RRA began informal consultation on the Roswell DRMP/EIS on November 8, 1991 (Cons. #2-22-92-I-156), when it requested a list of endangered, threatened, proposed, and candidate species for preparation of a Biological Assessment (BA) on the DRMP/EIS. The U.S. Fish and Wildlife Service (Service), New Mexico Ecological Services Field Office (NMESO) responded on December 12, 1991, with a species

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list for Chaves, Curry, De Baca, Guadalupe, Lincoln, Quay, and Roosevelt counties and updated the list by memorandum dated June 19, 1995. The NMESO commented on the Roswell DRMP/EIS on April 1, 1995 (Cons. #2-22-95-1-207). BLM did not request the NMESO to review the BA prepared for that document.

The RRA submitted a draft BA on September 28, 1995, that addressed the impacts of current resource management plans on species that are federally endangered, threatened, proposed, or candidates. NMESFO requested additional information, RRA: resubmitted the BA on December 15, 1995, with a request for Service concurrence. After continued discussion between the two agencies, the Service determined that it could not concur with BLM's interpretation of the thresholds for its determinations of effect on listed species. The BLM withdrew its request for concurrence on April 9, 1996, to reassess its determinations and continue to develop the information in its BA.

Six different plans, plan amendments, or environmental assessments (EA) direct current activities in the RRA. The final Roswell RMP/EIS will soon replace these documents. Because of this, it was decided in discussions with the RRA that its BA addressing the impacts of current resource management plans should also include determinations for the Roswell DRMP/EIS. The RRA again submitted a BA on July 9, 1996, with a request for concurrence with the determinations under existing plans and the Roswell DRMP/EIS. In this BA, the RRA requested concurrence with determinations for 19 species, of which 8 are endangered, 3 are threatened, 1 is proposed endangered, and 7 are candidates.

On August 5, 1996, the NMESFO concurred with determinations of "no effect" or "not likely to adversely affect" for five endangered, threatened, or proposed species (black-footed ferret, brown pelican, American peregrine falcon, Mexican spotted owl, and northern aplomado falcon), but could not concur with RRA determinations for four species (bald eagle, Arkansas River shiner, southwestern willow flycatcher, and Kuenzler hedgehog cactus) due to insufficient information. The NMESFO acknowledged RRA's findings of "may adversely affect" and request for formal consultation for three species (Pecos bluntnose shiner, Pecos gambusia, and interior least tern). The NMESFO made no comments on RRA determinations for candidate species.

On September 20, 1996, the RRA submitted the supplementary information and discussions the NMESFO requested. Based on the supplementary information, the NMESFO indicated in a memorandum dated September 25, 1996, that it was able to concur with RRA determinations of "not likely to adversely affect" for bald eagle, Arkansas River shiner, southwestern willow flycatcher, and Kuenzler hedgehog cactus. The following biological opinion is based on information in the BA and supplementary information, data in our files, discussions with species experts, and other sources of information.

A draft biological opinion dated April 8, 1997, was submitted to the BLM for review. The BLM commented on the draft biological opinion in a memorandum dated April 18, 1997.

BIOLOGICAL OPINION

It is the Service's biological opinion that the RRA resource management plans and the Roswell DRMP/EIS are not likely to jeopardize the continued existence of the interior least tern (*Sterna antillarum*), but are likely to jeopardize the continued existence of the Pecos bluntnose shiner (*Notropis simus pecosensis*) and Pecos gambusia (*Gambusia nobilis*). It is also the Service's biological opinion that the RRA resource management plans and the Roswell DRMP/EIS are likely to adversely modify critical habitat designated for the Pecos bluntnose shiner.

Description of the Proposed Action

This biological opinion addresses the manner in which the current RRA resource management plans and the Roswell DRMP/EIS either guide or propose to guide BLM activities in the RRA. Six different resource management plans, plan amendments, and EAs developed between 1976 and 1987 currently guide activities in the RRA. Each plan covers a specific activity or a specific part of the RRA. The plans are the East Chaves Management Framework Plan, the East Roswell Grazing Environmental Statement, the Environmental Assessment - Oil and Gas Leasing Roswell District, the Roswell Management Framework Plan Amendment, and the Fort Stanton Management Framework Plan Amendments. When the Roswell DRMP/EIS is final, it will replace these older resource management documents. The Roswell RMP will be the first comprehensive land use plan prepared for the entire RRk.

BLM Resource Programs

This section on BLM-managed programs in the RRA was adapted from the RRA BA (1996), the Roswell DRMP/EIS (1994), the Interim Oil and Gas Leasing and Development Roswell Resource Area Environmental Assessment (1995), and additional information. Environmental components analyzed in the Roswell DRMP/EIS include mineral resources; lands, realty, and rights-of-way; rangeland resources; vegetation; cultural resources; paleontological/geological resources; wilderness resources; recreation,- wild and scenic rivers, visual-resources; soil resources; water resources; air resources; wildlife; hazardous or solid wastes; fire; and Areas of Critical Environmental Concern. Resource management programs in the RRA correspond roughly to the environmental components, but some programs may affect or include several of the environmental components. For instance, the RRA's administration of grazing has important effects on rangeland resources, vegetation, soil resources, water resources, fire, and wildlife, and minor effects on some of the other environmental components. Conversely, some environmental components such as water are affected by several management programs. The Service has evaluated the environmental components as presented in the Roswell

DRMP/EIS and determined that the RRA programs that affect cultural resources, paleontological/geological resources, wilderness resources, wild and scenic rivers, visual resources, air resources, and hazardous or solid wastes either have no effect on Pecos bluntnose shiner, Pecos gambusia, and interior least tern or have effects that are insignificant, discountable, or beneficial. This is primarily because the RRA programs affecting these environmental components are of minor scope or occur in parts of the RRA that provide no habitat for the three species in this biological opinion.

The RRA management programs described briefly in the following paragraphs are those most likely to have a significant effect on the three species in this biological opinion. The RRA encompasses about 14 million surface acres of all ownerships in Quay, Guadalupe, Curry, DeBaca, Roosevelt, and Lincoln counties, plus most of Chaves County. There are about 1.5 million acres where both the surface and subsurface are in Federal ownership and another 8.25 million acres of Federal minerals underlying other surface ownerships.

Oil and Gas

Most of the RRA has high or moderate potential for oil and gas occurrence. More than 7,000 Federal, State, and fee wells were drilled in the RRA during the period of 1904 to 1991. As of March 1 1995, there were 1,694 Federal leases in effect in the RRA, covering approximately 1.25 million acres. Total projected disturbed acreage by the end of 1997 from all Federal drilling activity will be 7,800 acres. This surface disturbance will continue as long as the wells are producing and until reclamation has occurred.

When an oil or gas discovery is made, a well spacing pattern must be established before development drilling begins. Well spacing is regulated by the New Mexico Oil and Gas Conservation Division. Factors considered in the establishment of a spacing pattern include data from the discovery well concerning: porosity, permeability, pressure, composition, and depth of formations in the reservoir; well production rates and type (barrels of oil or cubic feet of gas); and the economic effect of the proposed spacing on recovery. The standard minimum spacing for oil production on Federal leases is 40 acres. Spacing for oil wells usually varies from 40 to 80 acres per well. Spacing for gas wells is generally from 160 to 320 acres per well.

In the RRA, oil and gas leasing and development is currently directed by Environmental Assessment No. NM-066-95-096, Interim Oil and Gas Leasing and Development, Roswell Resource Area (BLM 1995), which supersedes the older planning documents. This document will be superseded by the Roswell RMP (BLM 1994) when that document is finalized. Under the interim direction, lease parcels will be screened to identify re-

source management or operational conflicts. Parcels failing to pass the screening will not be offered for sale, but can be reconsidered for leasing after approval of the Roswell RMP. Under the screening, no parcels will be leased if there are: various operational concerns; designated significant caves; designated critical habitat for Federal threatened or endangered species; habitat designated as crucial for State threatened or endangered species; sites on the National Register of Historic Places; 100-year floodplains; areas proposed in the Roswell DRMP/Ei.S for special management; or areas proposed in the Roswell DRMP/EIS for closure to leasing or no surface Occupancy.

When the Roswell DRMP/EIS is finalized, leasing may resume in some of the areas not being leased under the interim oil and gas leasing EA. For example, it is intended to resume leasing in 100-year floodplains, but apply No Surface Occupancy (NSO) stipulations to any leases sold. There are, however, several exceptions to the NSO stipulations. In these cases, and for existing leases in floodplains, appropriate Conditions of Approval (COA) to protect floodplain resources will be applied when there is an Application to Drill.

Leases can include specific stipulations that are attached prior to lease sale to mitigate potential impacts. Some examples of lease stipulations are no surface occupancy, controlled surface use, and timing restrictions. For areas where the surface is managed by another Federal agency, and certain areas managed by the New Mexico State Parks, leasing stipulations are provided by those agencies. Where the mineral estate is owned by the U.S. Government and surface ownership is State or private, surface use stipulations are included that ensure conformance with the Endangered Species Act and other Federal laws. The lessee or operator will negotiate surface use requirements with the State or private landowner prior to development, as described in Onshore Oil and Gas Order No. 1.

In addition to lease stipulations, there are several Notice to Lessees for oil and gas development. These include netting pits and placing caps over exhaust stacks to prevent bird and bat entry. There are a number of standard operating COAs that are attached to every Application to Drill. The COAs include standards for road construction, pipeline construction, drill pad construction, reserve pit and tank battery construction, waste materials management, site reclamation, and other procedures. Additional COAs for site specific activities can be developed as needed through EAs or EISs to protect the environment. The COAs are intended to minimize surface impacts and provide measures for site restoration after drilling activities are completed.

Lands and Realty

The RRA currently has about 1,387 active rights-of-way (ROW) managed under its realty program. Presently about 25,958 acres of public land are affected by existing ROWS. Most ROWs are issued for oil and gas related roads, pipelines, and powerlines. Predominately, ROWs are issued for a 30 year period, but they can be issued for any period necessary to meet the objective of the ROW. Relinquished ROWs are returned to native vegetation. There are no designated energy-related ROW corridors in the RRA.

Watershed and Soils

Three watersheds in the RRA are susceptible to severe long-term soil loss. These areas are the Rio Bonito including Salado Creek, the Pecos River from the confluence of Yeso Creek to Bitter Lake National Wildlife Refuge (NWR), and the closed drainage area to Nakee Ishee Lakes. Four watersheds in the RRA have been identified as susceptible to severe gully erosion. These watersheds are the Rio Bonito including Salado Creek, Arroyo de[Macho, Gallo Arroyo, and the Feliz River.

The Roswell DRMP/EIS states that Best Management Practices (BMP) will be used to minimize sedimentation as a cause of nonpoint source pollution in surface waters. BMPs are based on standard operating procedures, oil and gas lease stipulations, or BLM policy. BMPs will be specified in activity plans for actions that make soils more susceptible to erosion or impair soil productivity. The DRMP\EIS further states that strategic watershed management plans will be developed and implemented for watersheds that are susceptible to severe long-term soil losses or gully erosion and which have a high potential to respond to treatment. As part of watershed management plans, site-specific prescriptions will be written which could include, but not necessarily be limited to: vegetation treatments; vegetation plantings; livestock grazing management; construction of erosion, sediment, and flood control structures; and implementation of a monitoring program.

Due to the 'checkerboard' ownership in watersheds, management on BLM administered lands alone may be inadequate to support designated stream uses. Where appropriate, cooperative agreements, Memorandum of Understanding, or other interagency efforts will be made to manage entire watersheds to maintain or improve water- quality.

Grazing

There are 414 grazing allotments in the RRA. Of the nearly 1.5 million acres of public land in the resource area, less than 1 percent are unsuitable for livestock grazing. An Allotment Management Plan is in place for 45 allotments. Activity plans, which include grazing systems, are being proposed on an additional 65 allotments. If no plan exists, grazing is conducted under the terms of the grazing permit. The current permitted use

APPENDIX 11

for the RRA is 329,370 animal unit months (AUM), which averages about 1 2 head of cattle per section or 59 head of sheep per section.

Standard practices proposed in the Roswell DRMP/EIS to maintain or achieve desired plant communities include: utilization levels not exceeding 45 percent of annual plant production as measured on key forage species; projects such as fences, water developments, erosion control structures, reseeding, or vegetative sales; grazing treatments such as changes in season of use, class of livestock, or stocking rates; and vegetation treatments including prescribed fire, prescribed natural fire, fuelwood sales, and biological, chemical, or mechanical controls.

Since 1979 in areas covered by the East Roswell Grazing EIS, and since in 1984 areas covered by the RRA Management Framework Plan EIS, 82,644 acres of brush (shinnery oak, mesquite, creosote bush) and 7,735 acres of broom snakeweed have been treated with chemicals. An additional 1,945 acres of brush have been treated with fire. Herbicide applications are in conformance with BLM, State, and EPA standards. Important wildlife habitat such as broadleaf tree groves, aquatic, riparian, wetland, and watering facilities are protected during brush control operations.

Recreation

Recreation in the RRA is both facility-based and dispersed. The Roswell DRMP/EIS proposes 24 Special Recreation Management Areas (SRMA). The SRMA's range in size from only a few acres to about 24,630 acres for Fort Stanton. Two SRMA's totaling 4,046 acres are designated for off-road vehicle (ORV) use. For the remainder of the RRA, ORV use is proposed to be closed for 38,576 acres, and limited to existing roads and trails for 1,414,878 acres. Most of the recreational visitation on public land in the RRA comes from dispersed recreation such as hunting, caving, fishing, sightseeing, primitive camping, biking, and hiking.

Riparian/Wildlife

The wildlife program in the RRA includes inventory, planning, habitat improvement projects, mitigation to curtail potential impacts from other activities, and compliance/monitoring. Riparian areas in the RRA include the Pecos River; Rio Bonito and Salado creeks; Rio Bonito acquired lands; the Overflow Wetlands; about 60 sinkholes, playas and alkali lakes; and about 20 springs or seeps.

Areas of Critical Environmental Concern

The Roswell DRMP/EIS proposes five Areas of Critical Environmental Concern (ACEC). These areas encompass about 64,500 acres of all surface ownerships.

Each area will have its own set of management prescriptions to protect the principal resources for which the ACECs are being designated.

Pecos Bluntnose Shiner

Status of the Species (Range-wide)

The Pecos bluntnose shiner (*Notropis simus pecosensis*) was listed as a threatened species with critical habitat on February 20, 1987 (USFWS 1987a). Its critical habitat in the Pecos River includes a 64-mile reach from 10 miles south of Fort Sumner to 12 miles south of the De Baca/Chaves County line and a 37-mile reach from near Hagerman to near Artesia. The principal reason for its listing was habitat alteration due to dam construction resulting in an altered hydrograph that reduced peak and base flows and increased the likelihood of channel intermittency. Water diversion for irrigation, habitat loss due to channel incision, decreased water quality as a response to lower base flows, and piscivory by non-native predatory fish species have also contributed to its decline.

The Pecos bluntnose shiner is a moderate-sized shiner up to 95 millimeters long. It is separable from co-occurring shiners by its robust body, blunt and rounded snout, and large slightly subterminal mouth that usually extends even with the pupil. The species is pallid gray to greenish-brown dorsally and whitish ventrally. A wide silvery lateral stripe extends from the pectoral girdle to the caudal base. Pelvic and anal fins lack pigmentation, dorsal and pectoral fins have small black flecks along rays, and the caudal fin is variably pigmented (USFWS 1992).

Pecos bluntnose shiner in the Pecos River are most frequently encountered between Fort Sumner and Roswell. Elsewhere in the historical range of the subspecies, the river is intermittent or otherwise modified and bluntnose shiner are uncommon or absent (Hoagstrom *et al.* 1994). Bluntnose shiner occupy a variety of mesohabitats in the river channel (Hoagstrom *et al.* 1994). They are typically found in low-velocity water 17 to 41 centimeters deep over sand substrate (USFWS 1992).

Historically, Pecos bluntnose shiner inhabited the mainstream of the Pecos River from Santa Rosa downstream to the vicinity of Carlsbad (Hatch *et al.* 1985). It has not been recorded in the Texas portion of the Pecos River. Collection records attest to the historical-abundance- of the species. For example, one collection made in 1939 from near Santa Rosa contained 1,482 bluntnose shiner. Subsequent sampling efforts in the same area in 1981 resulted in the collection of only 4 bluntnose shiner (USFWS 1992).

Currently, Pecos bluntnose shiner survive in the Pecos River from below Fort Sumner downstream to the upper end of Brantley Reservoir and seasonally in the reservoir. Hoagstrom *et al.* (1994) divided the currently occupied portion of the

river into three reaches for sampling and study purposes. Pecos bluntnose shiner were rare in the first reach from Sumner Dam to Taiban Creek. Reach two from Cedar Creek to the U.S. Highway 380 bridge yielded the highest number of adult Pecos bluntnose shiner in sampling. This reach included the upper critical habitat area for the species. In reach three from the Rio Hondo to the inflow of Brantley Reservoir, the samples included mostly eggs, larvae, and young bluntnose shiner. This reach included the lower critical habitat area.

Life History

The Pecos bluntnose shiner is a pelagic spawner that produces non-adhesive semi-buoyant eggs (Platania 1993). Increased river flows **and** water temperature stimulate spawning, which occurs repeatedly from June through August. Spawning eggs hatch within 24 to 48 hours and develop into protolarvae that move out of the main channel within 3 to 4 days of hatching. Protolarvae likely move into backwaters where the warm and relatively nutrient-rich waters provide for maximum larval growth rates (Platania 1993). Adult bluntnose shiner live up to 3 years.

Threats

Loss of permanent flow, alteration of flow patterns, introduction of non-native species, and degradation of water quality are the principal threats to Pecos bluntnose shiner. The operation of Sumner Dam has significantly altered flow regimes in the upper Pecos River (Brooks *et al.* 1991). Releases from Sumner Dam to transport irrigation water for use by the Carlsbad Irrigation District have resulted in unnaturally high flows during release periods and unnaturally low flows at other times. The release schedule has affected stream morphology, influencing Pecos bluntnose shiner habitat. The timing and duration of releases has affected spawning, downstream transport of eggs, and survival of juvenile bluntnose shiner.

Non-native fish may compete with and prey upon various life stages of Pecos bluntnose shiner. Sport fisheries have been established in all the lakes on the Pecos River. Introduced predators such as walleye and white bass now occur in the river and may prey on bluntnose shiner. The greatest number of such fish occur in the tailwaters directly below Sumner Dam with few occurring in the shallow sandy-bottomed reaches that bluntnose shiner-prefer (Larson and Propst 1994). The overall impact of non-native predators on Pecos bluntnose shiner in the river, therefore, remains uncertain. However, it is likely that survival of young Pecos bluntnose shiner displaced into downstream reaches below Roswell is low due to the increased presence of non-native predators that occur in relation to Brantley Reservoir. Pecos bluntnose shiner do not survive long in lake or other calm water environments (USFWS 1992), likely as a result of predation.

Other small fish including plains minnow (*Hybognathus placitus*), speckled chub (*Macrhybopsis aestivalis*), Rio Grande shiner (*Notropis jemezianus*), red shiner (*Cyprinella lutrensis*), and Arkansas River shiner (*Notropis girardi*) are frequently found in association with Pecos bluntnose shiner (Hoagstrom *et al.* 1994). Plains minnow and Arkansas River shiner are introduced in the Pecos River (Bestgen *et al.* 1989). It is not yet known if these introduced species directly compete with the natives, but reduction in populations of native-species following non-native introductions is well documented in other river systems.

Water quality degradation has been identified for the Pecos River and associated habitats. Elevated levels of organochlorine chemicals have been detected in association with agricultural water uses (USFWS 1992). Some portions of the Pecos River do not support designated or attainable uses (NMWQCC 1994). The reach of the river from Sumner Dam to Salt Creek is not fully supported as a limited warm water fishery. Probable causes of nonsupport for this reach of the river are siltation, reduction of riparian vegetation, and streambank destabilization. Probable sources of nonsupport for this reach of the river are rangeland uses and hydromodification (NMWQCC 1994). The reach of the river from Salt Creek to Rio Penasco is not fully supported as a warm water fishery. Probable causes of nonsupport for this reach of the river are metals, dissolved oxygen, unionized ammonia, total dissolved solids, siltation, reduction of riparian vegetation, and streambank destabilization. The toxic contaminant mercury has been found at chronic levels in this reach. Probable sources of nonsupport for this reach of the river are irrigation return flows, rangeland uses municipal point sources, and unknown sources (NMWQCC 1994). Reduced base flow caused by water development activities may increase the detrimental effects of water quality degradation.

Environmental Baseline for Pecos Bluntnose Shiner (in the Action Area)

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects that have undergone section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress.

The Bureau of Reclamation (BR) and the U.S. Army Corps of Engineers (Corps) have consulted formally with the Service on their operation of Lake Sumner and Santa Rosa Lake (Cons. #2-22-91-F-198, August 5, 1991, and Cons. #2-22-92-F-240, March 22, 1993). The action under consultation with BR was the volume, timing, and length of water releases from the upstream reservoirs to supply water to Brantley Reservoir for irrigation. Prior to the construction of Brantley Reservoir, downstream storage capacity in McMillan and Avalon reservoirs was limited and several upstream releases were

needed during the summer to supply irrigation needs. The greater storage capacity of the new Brantley Reservoir made it possible to meet downstream water needs with fewer, but larger volume, upstream releases. In 1989, a release of 1,100 cfs for 45 days was made from the upstream reservoirs to check the water holding capacity of Brantley Dam. This release almost emptied Santa Rosa and Sumner reservoirs and resulted in extensive postrelease drying of the river channel upstream of Bitter Lake NWR (BLNWR)(Brooks et al. 1991). The lack of summer rains exacerbated dry channel conditions and increased seasonally elevated salinity levels in the river downstream of Roswell. The Service concluded in its biological opinion that the agency's water management of the Pecos River was likely to jeopardize the continued existence of Pecos bluntnose shiner and adversely modify its critical habitat. Reasonable and prudent alternatives to remove jeopardy included the implementation of a pre-Brantley Reservoir release schedule from the upper dams for a 5-year period and the initiation of a 5-year research program to better understand the hydrology of the river and the biological needs of the Pecos bluntnose shiner.

The formal consultation with the Corps involved elevated mercury levels that had been detected in biota in Santa Rosa Lake and the possible effects of its transport downstream with water releases. The reasonable and prudent alternative in connection with this action was for the Corps to implement I study to evaluate the downstream transport of mercury into Pecos bluntnose shiner critical habitat.

Private entities from Roswell south to Lake Arthur hold aggregate water rights of 8,439.2 acre-feet from the Pecos River. There are also an additional 1,374 acrefeet in rights from wells. Although return flows may lessen the net withdrawals from the river, quantified information on such returns is not available. Consequently, these water rights are considered not only as diversions, but as depletions.

The EPA began consulting with the Service in the early 1980's on the effects to threatened and endangered species from the registration of specific pesticides. This evolved into nationwide formal consultations on clusters of pesticides in the late 1980's. A jeopardy opinion was reached for the Pecos bluntnose shiner in Chaves County, New Mexico, for the registration of 51 pesticides. In New Mexico, removal of jeopardy was to be accomplished through the establishment of a State program for the protection of threatened and endangered species from pesticides. To date, no State program has been implemented and the best way to deal with this highly complex issue is still being studied.

The EPA has consulted informally with the Service on the issuance of National Pollutant Discharge Elimination System permits for the cities of Artesia (Cons. #222-95-1-526, September 22, 1995) and Roswell (Cons. #2-22-89-1-032, December 20, 1988, and Cons. #2-22-96-1-473, October 18, 1996) for discharges from their

municipal wastewater treatment plants. The Service concurred with a finding of “no effect” for Artesia after the City agreed to modify its effluent storage system. Consultation is continuing concerning the level of nitrates in Roswell’s effluent.

The Roswell District of BLM has consulted informally with the Service on potential oil and gas drilling and development in the Pecos River floodplain near Roswell (Cons. #2-22-93-1-350, July 15, 1993, and Cons. #2-22-94-1-028, May 15, 1996). The proposed development of seven gas wells was withdrawn by the applicant. The same applicant recently submitted a proposal to drill three shallow exploratory wells. In addition to the proposed wells, there are six existing oil or gas wells on Federal mineral estate in the 100-year floodplain. Three of these wells are temporarily shut-in.

Inspection of topographic maps for the reach of the Pecos River from the Chaves-Eddy County line north to Sumner Reservoir and comparison with land ownership maps reveals 14 wells, and associated access roads on private lands in the 100-year floodplain. In addition, there are about 20 wells on private uplands within 0.5 mile of the Pecos River. These maps were last revised between 1950 and 1968 so it is uncertain if additional wells are now present or if some of the wells on the maps have been abandoned and plugged.

Grazing occurs on lands adjacent to the Pecos River in the RRA. Lands in De Baca County are almost completely in private ownership. The amount of public land increases in Chaves County, but most grazing allotments administered by the RRA still consist of a ‘checkerboard’ of public and private lands. The RRA administers 29 grazing allotments on public lands in the 100-year floodplain. These include about 6,700 acres of 100-year floodplain, which is about 10 percent of the 100-year floodplain in the RRA. For many of these allotments, public lands make up the minority of the ownership. Of the 29 allotments, 18 have 80 acres or less of public lands in the 100-year floodplain. Private lands usually surround these small parcels. Range conditions for these 29 allotments have been evaluated as fair for 16 and good for 13, with mostly a static trend. Range conditions for private lands have not been evaluated.

Status of the Pecos Bluntnose Shiner (in the Action Area)

The habitat of Pecos bluntnose shiner in the RRA includes about 170 miles of the Pecos River from Sumner Reservoir to the Chaves-Eddy County line. This is about 85 percent of the bluntnose shiner’s occupied habitat. Critical habitat in the RRA includes a 64-mile reach from 10 miles south of Fort Sumner to 12 miles south of the De Baca-Chaves County line and a 25-mile reach from near Hagerman to the Chaves-Eddy County line. This is about 90 percent of the designated critical habitat.

Sampling by Hoagstrom *et al.* (1994) determined that the reach of the Pecos River in the RRA from Cedar Creek to the U.S. Highway 380 bridge yielded the highest number of adult Pecos bluntnose shiner in sampling. This reach includes the upper critical habitat area for the species. In the reach from the Rio Hondo to the ChavesEddy County line in the RRA, the samples included mostly eggs, larvae, and young bluntnose shiner. This reach includes 25 miles of the lower critical habitat area.

Critical Habitat Constituent Elements - Pecos Bluntnose Shiner

The physical and biological features that are the basis for designating portions of the Pecos River as critical habitat for Pecos bluntnose shiner are clean permanent water, a main river channel habitat with sandy substrate, and a low velocity flow. These primary constituent elements provide the physical features and biological environment necessary for survival and recovery of the Pecos bluntnose shiner. They provide water of sufficient quality, quantity, and hydrologic regime to meet the requirements of each life stage.

Physical Habitat

The impacts to physical habitat involve the loss of the quantity and quality of water in critical habitat and the change in flow regime. The quantity and timing of flows influence how various habitats are formed and maintained. Water depletions reduce the ability of the river to create and maintain these habitats; degradation of water quality lessens the ability of endangered species to survive in these habitats. Water releases from Sumner Reservoir to meet downstream irrigation demands have a major impact on flow patterns in the Pecos River. The effects of these releases on Pecos bluntnose shiner and its habitat have been discussed previously in this document.

Biological Environment

Food supply, predation, and competition are important elements of the biological environment. Food supply is a function of nutrient supply and productivity, which could be limited by the presence of contaminants. Predation and competition from non-native fishes have been identified as factors in the decline of the bluntnose shiner. Depending upon species-specific tolerance levels, non-native fishes may have competitive advantages in habitats damaged by the presence of contaminants and altered flow regimes. Additionally, rare native species at larval and young-of-year stages may be affected to the extent that survival is limited via behavioral impacts.

Effects of the Action

The Service's primary task in developing a biological opinion is to determine whether the proposed action is likely to jeopardize the continued existence of any listed species (50 CFR 402.14(g)(4)). The jeopardy/non-jeopardy determination is based on an evaluation of: (1) A species' status in the project area and rangewide (see above sections); (2) the effects of the proposed action on the survival and recovery of a listed species (including effects of interdependent and interrelated actions); (3) the aggregate effects of other Federal actions on a listed species (e.g., amount of take occurring as a result of Federal actions subject to previous consultations); and (4) the cumulative effects on a listed species (i.e., future non-Federal actions that are reasonably certain to occur in the action area).

The RRA management plans guide numerous BLM-managed programs (discussed above). The programs expected to most greatly affect the Pecos bluntnose shiner and its critical habitat are oil and gas development and livestock grazing because these are major programs directed through the plans. The activities under the oil and gas, and grazing programs are expected to most greatly affect the shiner when they occur in the river floodplain, but activities in uplands within the watershed may also have effects on the species. The BLM manages lands for multiple uses so several activities may occur simultaneously in any one area. That is, oil production, grazing, recreation, and other activities may occur at the same time, in the same area, producing aggregate effects beyond those anticipated when looking at effects separately.

Oil and Gas Activities - Indirect effects are those that are caused by, or result from, the proposed action, and are later in time, but reasonably certain to occur. Interdependent actions have no independent utility apart from the action under consideration. Interrelated actions are part of a larger action, and are dependent on the larger action for their justification. Oil and gas leasing results in several interdependent and interrelated actions because it is merely the initial step in the process of producing commercial quantities of oil and gas. Subsequent to leasing is the possibility of exploration, development, and production of oil and gas, and the eventual abandonment of wells and other facilities. Although there is no current leasing in the 100-year floodplain under the Interim Oil and Gas Leasing and Development Roswell Resource Area Environmental Assessment, there could be new or continued development of older leases containing substantial amounts of floodplains. For the area from Sumner Reservoir to the Chaves-Eddy County line, 70 percent of the floodplain acres for which the RRA has leasing authority are presently leased. Oil and gas facilities in a floodplain are exposed to an increased risk from flooding. While no ruptures or releases have occurred in the RRA as a result of flood damage, the possibility of such occurrences increases with additional development in the floodplain.

impacts from development in floodplains include the possibility of soil and water contamination from leaks or ruptures, increased sediment load in the runoff from Pads. and roads, additional non-point source pollution, and greater erosion rates. Oil field development in or adjacent to floodplains would lead to additional roads and pipeline crossings in floodplains. Floodplain hydraulics could be changed, possibly increasing flood hazards at the development site or elsewhere on the river. Potential water quality degradation associated with oil and gas leasing and would likely result in adverse effects to the Pecos bluntnose shiner.

The BLM manages the leasing and subsequent development of oil and gas resources on lands in Federal surface and subsurface ownership and on some lands in private surface ownership that lie over the Federal mineral estate. This includes lands within the 100-year floodplain of the Pecos River. The Pecos bluntnose shiner in the RRA occurs in a part of the Pecos River that contains an estimated 71,600 acres of 100-year floodplain. The RRA administers the mineral estate for about 10,400 acres (15 percent) of this floodplain, of which 7,350 acres are presently leased. Lease development has resulted in six oil or gas wells in the 100-year floodplain. No ruptures or releases of oil, gas, or byproducts have occurred from these wells and protective measures developed by BLM are designed to minimize the likelihood of these events. Any future Applications to Drill on existing Federal leases on BLM surface in the 100-year floodplain will, when the Roswell RMP/EIS is finalized, include COAs number 109-118 for floodplain development and other COAs to protect the floodplain. These COAs will greatly reduce, but may not completely eliminate, accidental spills of petroleum or petroleum byproducts, and will help contain any spills for easier cleanup if accidents occur.

Grazing Activities

Analysis of the effects of livestock grazing on fish and fish habitat requires looking at subtle, long-term, incremental changes in watershed functions, riparian and aquatic communities, and stream channel morphology. Platts (1990) says of past governmental efforts at analysis of livestock impacts on riparian and aquatic communities, "Livestock impacts were cumulative and even though they couldn't be seen annually, in the sum they were deleterious. Their (agency) review of ongoing actions did not tell the complete story."

As Platts indicates, the long-term, cumulative aspect of grazing impacts, in combination with the short-term, limited data available on range condition and fish and fish habitat, make a purely empirical analysis of the effects of grazing and grazing management difficult and often misleading, particularly on an allotment by allotment basis. However, extrapolations of general hydrologic and biologic principles and site-specific research data provide a large body of evidence linking degradation of watersheds, stream channels, aquatic and riparian communities, and fish habitat and populations in western North America to grazing and grazing management (Leopold 1924, Leopold 1951, York and Dick-Peddie 1969, Hastings and Turner 1980, Dobyns 1981, Kauffman and Krueger

1984, Skovlin 1984, Kinch 1989, Chaney *et al.* 1990, Platts 1990, Armour *et al.* 1991, Bahre 1991, Meehan 1991, Fleischner 1994).

The effects to the Pecos River and its populations of Pecos bluntnose shiner from livestock grazing and management would occur through several mechanisms, two of which are: 1) watershed alteration, and 2) physical riparian destruction and alteration.

Watershed Alteration - Livestock grazing may cause long-term changes to the watershed and its functions. The extent of these changes varies with watershed characteristics, grazing history, and cumulative effects from other human uses and natural watershed processes. Watershed changes due to grazing are more difficult to document than direct livestock impacts to the riparian and aquatic communities due to their long-term, incremental nature, the time lag and geographic distance between cause and effect, and the numerous confounding variables. Despite this, the relationship between livestock grazing in a watershed and effects to river systems is widely recognized and documented (Leopold 1946, Blackburn 1984, Skovlin 1984, Chaney *et al.* 1990, Platts 1990, Bahre 1991, Meehan 1991, Fleischner 1994, Myers and Swanson 1995). Although watershed effects vary depending upon the number and type of livestock, the length and season of use, and the type of grazing management, the mechanisms remain the same and the effects vary only in extent of area and severity (Blackburn 1984, Johnson 1992).

Livestock grazing may alter the vegetative composition of the watershed (Martin 1975, Savory 1988, Vallentine 1990, Popolizio *et al.* 1994). It may cause soil compaction and erosion, alter soil chemistry, and cause loss of cryptobiotic soil crusts (Harper and Marble 1988, Marrs *et al.* 1989, Orodho *et al.* 1990, Schlesinger *et al.* 1990, Bahre 1991). Cumulatively, these alterations contribute to increased erosion and sediment input into streams (Johnson 1992, Weltz and Wood 1994). They also contribute to changes in infiltration and runoff patterns, thus increasing the volume of flood flows while decreasing their duration and decreasing the volume of low flows while increasing their duration (Brown *et al.* 1974, Gifford and Hawkins 1978, Johnson 1992). Groundwater levels may decline and surface flows may decrease or cease (Chaney *et al.* 1990, Elmore 1992). Development of livestock waters may alter surface flows by impoundment, spring capture, or runoff capture.

Physical Riparian Destruction and Alteration - Cattle presence on streambanks destabilizes streambanks through chiseling, sloughing, compaction, and collapse, and results in wider and shallower stream channels (Armour 1977, Platts and Nelson 1985b, Platts 1990, Meehan 1991). This causes progressive adjustments in other variables of hydraulic geometry and results in changes to the configuration of pools, runs, riffles, and backwaters; levels of fine sediments and substrate embeddedness; availability of instream

cover; and other fish habitat factors (Bovee 1982, Rosgen 1994). It also changes the way in which flood flows interact with the stream channel and may exacerbate flood damage to banks, channel bottoms, and riparian vegetation. These impacts occur at all levels of cattle presence, but increase as number of livestock and length of time the cattle are present increase (Marlow and Pogacnik 1985). Damage begins to occur almost immediately upon entry of the cattle onto the streambanks and use of riparian zones may be highest immediately following entry of cattle into a pasture (Goodman *et al.* 1989, Platts and Nelson 1985a). Vegetation and streambank recovery from long rest periods may be lost within a short period following grazing reentry (Duff 1979). Bank configuration, soil type, and soil moisture content influence the amount of damage with moist soil being more vulnerable to damage (Marlow and Pogacnik 1985, Platts 1990). Cattle presence on streambanks can retard rehabilitation of previous damage as well as cause additional alteration (Platts and Nelson 1985a).

Cattle grazing in and on riparian vegetation may cause changes in the structure, function, and composition of the riparian community (Szaro and Pase 1983, Warren and Anderson 1987, Platts 1990, Schulz and Leininger 1990). Species diversity and structural diversity may be substantially reduced and normative species may be introduced through spread in cattle feces. Reduction in riparian vegetation quantity and health and shifts from deep rooted to shallow rooted vegetation contribute to bank destabilization and collapse and production of fine sediment (Meehan 1991). Loss of riparian shade results in increased fluctuation in water temperatures with higher summer and lower winter temperatures (Karr and Schlosser 1977, Platts and Nelson 1989). Litter is reduced by trampling and churning into the soil, thus reducing cover for soil, plants, and wildlife (Schulz and Leininger 1990). The capacity of the riparian vegetation to filter sediment and pollutants to prevent their entry into the river and to build streambanks is reduced (Lowrance *et al.* 1984, Elmore 1992). Channel erosion in the form of downcutting or lateral expansion may result (BLM 1990).

Physical damage to streambanks and channel in conjunction with loss or reduction of riparian vegetation may change the timing and magnitude of streamflow (Stabler 1985, Meehan 1991). Flood flows may increase in volume and decrease in duration and low flows may decrease in volume and increase in duration. Cattle trampling and grazing of the riparian corridor can make banks and vegetated more susceptible to severe damage during catastrophic flooding.

As with watershed effects, livestock grazing effects on streambanks, channels, and riparian vegetation vary depending upon the number and type of livestock, the length and season of use, and the type of grazing management; however, the mechanisms remain the same and the effects vary only in extent of area and severity (Kinch 1989, Vallentine 1990, Platts 1990, Elmore 1992, Kovalchik and Elmore 1992, Chaney *et al.* 1993, Popolizio *et al.* 1994). Although success in improving and restoring streambanks,

channels, riparian vegetation, and fish habitat has been achieved under various grazing systems (Chaney *et al* 1990, Dagget 1992, Elmore 1992, Myers and Swanson 1995), the greatest success has been achieved with exclusion of livestock in the riparian and stream corridor (Claire and Storch 1977, Duff 1979, Van Velson 1979, Rickard and Cushing 1982, Platts and Nelson 1985b, Stuber 1985, Warren and Anderson 1987, Schulz and Leininger 1990, Prange 1993). Exclusion or removal of livestock use is known as “rest” under various grazing system terminologies.

The BLM manages grazing on about 1.4 million acres of uplands (about 10 percent of the RRA). The uplands occur mostly in Chaves and Lincoln counties, and most, except lands in Lincoln County that drain into the Tularosa Basin, are within the Pecos River watershed. The BLM manages grazing on 6,700 acres (10 percent) of the Pecos River floodplain in the RRA.

The RRA administers 29 grazing allotments that include lands in the Pecos River 100-year floodplain. For many of these allotments, public lands make up the minority of the ownership. Of the 29 allotments, 18 have 80 acres or less of public lands in the 100-year floodplain. Private lands usually surround these small parcels. Range conditions are rated as fair for 16 of the allotments and as good for the other 13. Range condition trends are given as up for 6 allotments, static for 22 allotments, and down for 1 allotment. Of the 11 allotments with more than 80 acres, 7 are in good condition and 4 in fair. Ten have static trends while 1, the largest allotment and adjacent to the BLNWR, is in an upward trend and is currently in good condition.

Livestock grazing on BLM lands along the Pecos River is authorized on an allotment basis. All grazing is by cow/calf operations on a yearlong permit. Grazing regimes include rest rotation, seasonal, and yearlong in areas of large pastures. Normally one or two pastures of an allotment have a portion of the Pecos River within their boundaries. Generally, pastures that include river frontage are grazed in the fall, winter, and early spring months. Cattle naturally migrate to the uplands in the summer due to vegetative preferences and to avoid annoying insects. Sometimes cattle are moved out of riparian areas because of poisonous plants such as rayless goldenrod.

The BLM's past, present, and future livestock management practices are intended to improve the condition of riparian and upland areas. Techniques for this include development of water sources away from the river, vegetation treatments to reduce brush species and encourage herbaceous plants that protect the soils, fencing to facilitate rotation of cattle between pastures, and establishment of grazing management systems. The effectiveness of these techniques is determined through vegetation monitoring studies, which use permanent sites to track vegetation changes and to determine proper stock-

ing rates on the grazing allotments.

Absolute control of riparian areas is limited due to the mixture of land ownerships and the small percentage of Federal lands in most areas. Geographically, the breaks along the river make fencing difficult and large fluctuations in water flow make it difficult to maintain fencing across the river.

The BA indicates there are about 1,300 acres of riparian areas on public lands along the Pecos River in the RRA. About 500 acres are in the proposed North Pecos and Overflow Wetlands ACECS. The riparian areas are all classified in the BA as being in a fair condition with a static trend. All but 120 acres are allotted for grazing.

The Roswell DRMP/EIS includes guidance recommending construction of streambank stabilization structures, native riparian plantings, establishment of riparian pastures, salt cedar control, and spring and drainage protection on the Pecos River for fisheries and aquatic habitat management. There is no schedule of specific actions or timetable in the Roswell DRMP/EIS. Instead, the implementation of specific actions is guided through annual activity plans or through recommendations for mitigation contained in EAs or EISs.

Special Management Areas (SMAS) on public lands are designated through RMPs or amendments. These areas are designated to place management emphasis on some significant resource within the SMA. The Roswell DRMP/EIS proposes the establishment of two SMAs along the Pecos River primarily for the protection of riparian areas and Pecos bluntnose shiner habitat. The Overflow Wetlands ACEC comprises 6,814 acres, with 2,987 acres being public, 1,720 acres being State, and 2,107 acres being private. The management goal is to 'Protect the biological and scenic values of the Overflow Wetlands WHA, which provides critical habitat for T/E fish species and supports a significant riparian/wetland plant community. The DRMP/EIS describes various management prescriptions to meet the management goal, which include closing the ACEC to future oil and gas leasing, enlarging the present grazing exclusion area by about 640 acres, adjusting livestock stocking rates and season of use, and limiting ORV use. The North Pecos River ACEC comprises 6,400 acres, with 3,360 acres being public, 1,260 acres being State, and 1,880 acres being private. The management goal is to "Protect the biological and scenic qualities of the Pecos River ACEC, which provides critical habitat for T/E fish species and supports a significant riparian plant community. The DRMP/EIS describes various management prescriptions to meet the management goal, which include closure to future oil and gas leasing or designation of no surface occupancy, modifying grazing practices, doing salt cedar control, and limiting ORV use. The DRMP/EIS gives no timetable for implementing the management prescriptions. Again, such actions are included in annual work plans rather than in the RMP itself.

Cumulative Effects

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities on endangered or threatened species or critical habitat that are reasonably certain to occur in the foreseeable future. The numerous actions that may contribute to portions of the Pecos River being partially or nonsupportive of its designated uses provide examples of ongoing or future non-Federal activities that may affect the Pecos bluntnose shiner. These actions include, but are not limited to, road maintenance, construction, recreation, land disposal, resource extraction, agriculture, hydromodification, municipal point sources, silviculture, unauthorized spills, and road runoff. Because the BLM manages only about 15 percent of the surface in the RRA, non-Federal actions can be expected to have the greater overall influence on water quality. Future Federal actions are subject to the consultation requirements established in section 7, and, therefore, are not considered cumulative in this analysis.

Conclusion

The Service has evaluated the potential threats and the relative importance of the Pecos bluntnose shiner that occur in the RRA. Sampling indicates that the best remaining habitat for the bluntnose shiner occurs in the RRA and maintenance of this habitat is crucial to survival of the species. The RRA contains 90 percent of the designated critical habitat for the species. The principal threat to the Pecos bluntnose shiner is management of water flows in the river, an activity under the control of agencies other than BLM. Another threat to the Pecos bluntnose shiner is degradation of water quality in the Pecos River. Activities near the river and in the watershed can contribute to water quality degradation and the RRA has management responsibility for some of these activities.

The Service has identified the leasing and subsequent development of oil and gas resources in the Pecos River 100-year floodplain as an activity under RRA management responsibility that has the potential to adversely affect water quality and thus the Pecos bluntnose shiner. The RRA administers the mineral estate for about 10,400 acres (15 percent) of the 100-year floodplain in the RRA, of which 6,900 acres (66 percent) are presently leased. There has been relatively little development of these leases to date, with only six active wells. No ruptures or releases of (oil-, gas, or byproducts have occurred from these wells and protective measures developed by BLM are designed to minimize the likelihood of these events. Any future Applications to Drill on existing Federal leases on BLM-managed surface in the 100-year floodplain will, when the Carlsbad RMP/EIS is finalized, include COAs number 109-118 for floodplain development and other COAs to protect the floodplain. These COAs will greatly reduce, but may not completely eliminate, accidental spills of petroleum or petroleum byproducts, and will help contain any spills for easier cleanup if accidents occur.

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Under the Environmental Assessment No. NM-066-95-096, Interim Oil and Gas Leasing and Development, Roswell Resource Area (BLM 1995), there is currently no leasing in 100-year floodplains. When the Roswell RMP/EIS is finalized, leasing may resume in some of the areas not being leased under the interim EA. For example, it is intended to resume leasing in 100-year floodplains, but apply No Surface Occupancy (NSO) stipulations to any leases sold. There are, however, several exceptions to the NSO stipulations that could contribute to degradation of floodplains and increase the possibility of pollutants entering Pecos bluntnose shiner habitat.

The BLM follows the National Environmental Policy Act (NEPA) in evaluating the impacts of oil or gas development projects. Through these evaluations, COAs, including the standard COAs found in Appendix 4 of the Carlsbad RMP/EIS, are applied to the projects to protect sensitive resources. The BLM conducts compliance monitoring during projects, and monitoring of endangered species or their habitat can be included if considered necessary. The NEPA process, however, is applied on a project-by-project basis and may not adequately consider cumulative impacts, particularly if the impacts result from projects of a different type or result from projects elsewhere in the watershed.

The Service has further identified grazing management in both uplands and riparian areas as an activity that has the potential to adversely affect water quality and thus the Pecos bluntnose shiner. Existing plans and the Roswell DRMP/EIS provide direction to implement measures to maintain and improve range conditions. Among these measures are forage utilization standards, range projects like fencing and water development, vegetation treatments, and adjustments in grazing regimes or stocking rates. Changes in use allocations are made on the basis of range monitoring data. However, among the grazed lands in the RRA, there are several watersheds that have been identified in the Roswell DRMP/EIS as being susceptible to severe long-term soil loss or to severe gully erosion. The New Mexico Water Quality Control Commission (1994) identifies siltation, reduction of riparian vegetation, and streambank destabilization as among the probable causes for the Pecos River in the RRA not supporting its designated use as a warm water fishery, and identifies rangeland agriculture as a probable source of the non-support.

Bureau of Land Management - Lands in the RRA are subject to other multiple uses besides the oil and gas development and grazing just discussed. These lands are open to recreational use; the sale of mineral materials such as caliche, sand, and gravel; the establishment of ROWs for roads, electric utilities, or pipelines; and other minor uses. These activities combined with oil and gas, and grazing may have aggregate effects beyond what would be anticipated if the activities occurred separately. Project-by-project NEPA analysis may be inadequate to detect these aggregate effects.

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The only self-sustaining population of Pecos bluntnose shiner occurs in the Pecos River from Cedar Creek to Roswell, a distance of about 50 miles, all within the RRA. If this population is lost, the species will likely become extinct. Additionally, if the species is to recover and be removed from the endangered species list, more habitat in the Pecos River will need to support a viable bluntnose shiner population. The most likely part of the river to support shiners in the future is in the RRA.

The RRA needs to know and understand the status of the Pecos bluntnose shiner in its Resource Area so it can alleviate threats to the species, particularly threats from cumulative actions that are not easily detected through project-by-project impact analysis. The RRA currently relies on data from other agencies to fill the need for status information for the shiner. It obtains water quality information from the State and fish survey information from the Service. This information is useful, but may not adequately fill BLM's information needs.

The Roswell DRMP/EIS, under the section for Special Status Species Habitat Management, lacks direction to monitor the general status of threatened or endangered species in the Resource Area. Although project-specific monitoring is directed elsewhere in the DRMP/EIS, the absence of any such projects in the habitat of a threatened or endangered species could mean the Resource Area might never determine the status of threatened or endangered species for which it has management responsibility. The Service realizes that monitoring, beyond projectspecific monitoring, is being done for some species, and that the BLM cooperates with the State, the Service, and others in monitoring efforts. But, monitoring is a critical component of managing threatened and endangered species, and in the absence of assistance from other agencies, the BLM should have clear direction that it will accomplish the task itself for species for which it has management responsibility.

The Roswell DRMP/EIS, under the section for Special Status Species Habitat Management, does direct that U.S. Fish and Wildlife Service Recovery Plans will be implemented. In the Pecos Bluntnose Shiner Recovery Plan (USFWS 1992), task 1.16 states, 'Monitor existing populations and associated aquatic habitats.' The task is given a priority number of 1 meaning that the Service considers the task to be, "An action that must be taken to prevent extinction or to prevent the species from declining irreversibly." The responsible agencies given in the recovery plan for accomplishing -the monitoring task are the Service, the -New Mexico Department of Game and Fish, and the BR. But, the bluntnose shiner was listed in 1987, and the recovery plan was not finalized until 1992, meaning there were 5 years when no agency was assigned monitoring responsibility. If the RRA had direction within its RMPs to monitor threatened or endangered species, it could have initiated monitoring directly after the species was listed rather than waiting for the recovery plan to provide guidance.

The RRA manages programs along the Pecos River and in the Pecos River watershed that may adversely affect the Pecos bluntnose shiner. Further, these programs may have aggregate, cumulative, or synergistic effects that are not easily detected when project impacts are analyzed separately. The most direct way to determine the effects of BLM resource management programs on the Pecos bluntnose shiner is to monitor the species and its habitat directly. The Roswell RMPs and the Roswell DRMP/EIS lack any direction to monitor the ongoing status of the Pecos bluntnose shiner or its habitat. Therefore, it is the Service's opinion that implementation of the Roswell RMPs and the proposed implementation of the Roswell DRMP/EIS are likely to jeopardize the continued existence of the Pecos bluntnose shiner.

Similarly, the lack of RMP direction to monitor and detect any adverse changes in the critical habitat for the Pecos bluntnose shiner is likely to lead to the adverse modification of Pecos bluntnose shiner critical habitat.

REASONABLE AND PRUDENT ALTERNATIVE FOR PECOS BLUNTNOSE SHINER

Regulations (50 CFR §402.02) implementing section 7 define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that (1) can be implemented in a manner consistent with the intended purpose of the action, (2) can be implemented consistent with the scope of the action agency's legal authority and jurisdiction, (3) are economically and technologically feasible, and (4) would, the Service believes, avoid the likelihood of jeopardy to the continued existence of listed species or destruction or adverse modification of critical habitat. Therefore, jeopardy to the Pecos bluntnose shiner and adverse modification of its critical habitat would not be likely to result if all elements of the following reasonable and prudent alternative are implemented:

- 1 . Establish a program in the Roswell RMP, or in guidance issued under the authority of the RMP to monitor the status of threatened and endangered species in the RRA, with the type and intensity of monitoring for each species being determined by such variables as abundance of the species in the Resource Area, habits and habitat of the species, and degree of sensitivity of the species to habitat perturbations. Within this program, establish a monitoring program for the Pecos bluntnose shiner and its critical habitat in the RRA. The Service will assist the RRA in designing a program that will meet the needs of detecting adverse impacts to the Pecos bluntnose shiner so the impacts can be promptly corrected.
2. The Roswell DRMP/EIS directs the initiation of several activities that will improve habitat for Pecos bluntnose shiner. These activities include such things as implementation of management prescriptions for the newly established North Pecos River and Overflow Wetlands ACECS, and development of strategic watershed management plans for watersheds susceptible to severe long-term soil losses or gully erosion. The scheduling of specific tasks to carry out the general guidance of the Roswell

DRMP/EIS is done at the annual activity planning level. Give priority in annual activity planning to activities that will most benefit Pecos bluntnose shiner habitat. The Service suggests giving priority to implementing management prescriptions for the North Pecos River ACEC and developing and implementing a strategic watershed management plan for the Pecos River (from confluence of Yeso Creek to Bitter Lake NWR).

3. Continue the policy contained in the Interim Oil and Gas Leasing and Development EA (BLM 1995) of selling no new oil and gas leases on lands with 100-year floodplains, unless or until BLM can demonstrate that other mandatory protective measures will provide equivalent protection.
4. The Roswell DRMP/EIS (BLM 1994) contains proposed surface use and occupancy requirements for oil and gas activities in floodplains. It states, 'No surface occupancy would be allowed within floodplains or within 200 meters of the outer edges of 100-year floodplains, to protect riparian areas' (Appendix 3). Change the wording of this sentence to indicate the purpose of the policy is to protect the integrity of the 100-year floodplain, not just riparian areas within the floodplain.
5. Several possible exceptions are identified for the no surface occupancy policy identified above. Eliminate any exceptions in Pecos bluntnose shiner habitat that could contribute to the degradation of floodplain characteristics and water quality for the shiner.
6. The Roswell Resource Area Proposed Resource Management Plan/Final Environmental Impact Statement (BLM 1997) contains 141 COAs (Appendix 4) for oil and gas operations and other activities. The COAs number 109-118 apply to floodplain development. Compile these COAs, other COAs that may apply to floodplain development, and any other applicable information into a single guidance document for availability to floodplain lease holders.

Pecos Gambusia

Status of the Species (Range-wide)

Information on the Pecos gambusia (*Gambusia nobilis*) is taken primarily from the *Pecos Gambusia Recovery Plan* (USFWS 1983) and from Echelle *et al.* (1989). The Pecos gambusia was listed as endangered under the Endangered Species Conservation Act of 1969, on October 13, 1970. It became an endangered species under the Endangered Species Act of 1973 when that legislation was enacted. No critical habitat has been designated. The principal reasons for its listing were loss of habitat and inability to

interact successfully with introduced non-native fish. It has declined to the point where it now occupies only four major localities and certain populations have declined considerably.

Pecos gambusia is a small fish 25-40 millimeters long in the livebearer family (Poeciliidae). Members of this family have strong sexual dimorphism; the anal fin of males is modified into a gonopodium, an intromittent organ used in copulation. Gonopodial structures distinguish Pecos gambusia from other livebearers within its native range. Color patterns and morphometric characters are also useful in making preliminary field identifications. Pecos gambusia have an arched back while the backs of the other two gambusia species within its range, mosquitofish (*Gambusia affinis*) and largespring gambusia (*Gambusia geiseri*) are relatively straight. Pecos gambusia has the margins of the scale pockets outlined in black, spots are normally absent on the caudal fin, and females have a black area on the abdomen that surrounds the anus and anal fin. The other two species of gambusia lack this combination of characteristics.

The Pecos gambusia is endemic to the Pecos River basin in southeastern New Mexico and western Texas. Historically, it occurred at least as far north as near Fort Sumner, New Mexico, and as far south as Fort Stockton, Texas. Presently, it is restricted to springs and their outflows on the western slope of the Pecos River drainage. Natural populations in New Mexico occur in several springs and isolated gypsum sinkholes at BLNWR in Chaves County, and in Blue Spring, a 2.5 mile long spring run that flows into the Black River near Black River Village in Eddy County. Natural populations in Texas occur in the headwaters of Phantom Lake and in Giffin and East Sandia springs near Balmorhea in Reeves County, and in Leon Creek and the Diamond Y Spring outflow north of Fort Stockton in Pecos County.

In addition to the natural populations, introduced populations occur at BLNWR at other sinkholes, and at the Salt Creek Wilderness Area in Ink Pot, an isolated gypsum sinkhole. The introduced stock that once occurred in a series of artificial pools at the Living Desert State Park near Carlsbad has been extirpated.

The habitat for Pecos gambusia is predominately springheads and spring runs. Populations may also occur in areas with little spring influence but with abundant overhead cover, in sedge covered marshes, and in gypsum sinkholes. These areas are seldom subjected to destructive scouring floods. Pecos gambusia have been observed to occur from the surface to depths of 3 meters.

The genus *Gambusia* is primarily subtropical. Pecos gambusia occur principally at the lower elevations and more thermally stable localities (ie., springs) within its geographic range. All populations occur between 2,700 feet and 3,900 feet elevation, a range of 1,200 feet. The range of temperature tolerance has been reported by Gehlbach *et al.* (1978) as an average critical thermal maxima of 38.1-39.3 degrees centigrade, and

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thermal preferenda of 21-25 degrees centigrade in the morning and 26-30 degrees centigrade in the afternoon. No data are available on cold tolerances of the species.

Pecos gambusia can tolerate a range of salinities. Total dissolved solid concentrations at occupied sites vary from 1 to 30 parts per thousand.

Threats

Water withdrawals from the Pecos River basin for irrigation and the construction of dams for flood control and irrigation have affected the Pecos River for more than 100 years. Extensive groundwater pumping of aquifers surrounding the Pecos River has caused some springs to cease flowing and reduced the flow of others. Extirpations of Pecos gambusia are documented from Comanche Springs and North Spring River due to failed spring flows. Other undocumented extirpations are likely.

Water contamination at occupied sites is a considerable concern. Surface contamination could come from various sources ranging from accidental spills of pesticides to intentional vandalism. Possibilities of aquifer contamination range from surface pollutants in aquifer recharge zones to subsurface contamination through oil and gas drilling activities.

Native fishes, which have evolved in communities with low species diversity, are often unable to compete with introduced species. The effects of competition on Pecos gambusia are well known and available data indicate that they are disappearing in the Balmorhea area because of the expansion of largespring gambusia, a non-native introduced into the springs in the early 1930's.

Predation on Pecos gambusia could be a major limiting factor in areas where no submerged vegetation or shallow areas provide cover from predators. The virtual absence of Pecos gambusia from the head pool of Diamond Y Spring may be attributable partly to the presence of green sunfish and largemouth bass.

Environmental Baseline for Pecos Gambusia (in the Action Area)

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects that have undergone section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress.

Groundwater pumping for agricultural irrigation by private entities is the major activity affecting the environmental baseline for Pecos gambusia. Groundwater pumping has caused a number of springs to cease flowing and has reduced the flow of others within the historic range of Pecos gambusia. Several spring failures, resulting in Pecos gambusia extirpations, are directly attributable to groundwater pumping. The most serious effects have occurred in Texas. At BLNWR, a lowered water table has isolated the gypsum sinkhole springs from each other. Formerly, the water table was near the surface and there was some connecting flow between the springs.

Because of the limited distribution of Pecos gambusia, there have been few section 7 consultations conducted for this species. The EPA began consulting with the Service in the early 1980's on the effects to threatened and endangered species from the registration of specific pesticides. This evolved into nationwide formal consultations on clusters of pesticides in the late 1980's. A jeopardy opinion was reached for the Pecos gambusia in Chaves County, New Mexico, for the registration of 52 pesticides. In New Mexico, removal of jeopardy was to be accomplished through the establishment of a State program for the protection of threatened and endangered species from pesticides. To date, no State program has been implemented and the best way to deal with this highly complex issue is still being studied.

The Roswell District of BLM has consulted informally with the Service on potential oil and gas drilling and development in the Pecos River floodplain adjacent to the northern boundary of BLNWR (Cons. #2-22-93-1-350, July 15, 1993, and Cons. #2-22-94-1-028, May 15, 1996). The proposed development of seven gas wells was withdrawn by the applicant. The same applicant recently submitted a proposal to drill three shallow exploratory wells.

Status of the Pecos Gambusia (in the Action Area)

The occupied habitat of Pecos gambusia in the RRA includes 11 springs and sinkholes on BLNWR and 1 sinkhole, the Inkpot, on the Salt Creek Wilderness Area. The BLNWR is one of the four main occupied sites for the species. The 12 populations in the RRA represent 63 percent of the currently extant populations. All of the populations in the RRA are on lands under the surface management of the Service. The RRA is responsible for minerals management-of these areas.

The RRA management plans guide numerous BLM-managed programs (discussed above). Among these is the leasing and subsequent development of oil and gas resources on lands in Federal ownership and on some lands in private surface ownership. The Roswell DRMP/EIS proposes closing the Refuge and Wilderness to future oil and gas leasing. But, there are three 'grandfathered' developed Federal oil or gas leases on BLNWR. There are leases directly southeast of the Refuge in conjunction with the

South Bitter Lake Oil Field and directly north of the Refuge in the Pecos River floodplain. Three wells are proposed to be drilled on leases directly north of the Refuge.

Effects of the Action

Indirect effects are those that are caused by, or result from, the proposed action, and are later in time, but reasonably certain to occur. Interdependent actions have no independent utility apart from the action under consideration. Interrelated actions are part of a larger action, and are dependent on the larger action for their justification. The indirect effects and interrelated actions that result from oil and gas leasing were discussed in the Pecos bluntnose shiner section of this document.

Cumulative Effects

Cumulative effects are those effects of future non-Federal (state, local government, or private) activities on endangered or threatened species or critical habitat that are reasonably certain to occur in the foreseeable future. Urban and suburban development in northeastern Roswell likely will continue to move toward BLNWR. This will increase the possibility of groundwater pollution from septic leach fields and will eliminate the present buffer of undeveloped land adjacent to the refuge. The pumping of groundwater for agricultural and personal use can be expected to continue with the potential of lowering the level of springs that support Pecos gambusia. There is potential for oil and gas development on private and State lands adjacent to BLNWR. Some of these wells could penetrate the aquifer that feed the springs on BLNWR and introduce the possibility of subsurface water contamination.

Conclusion

The Service has evaluated the potential threats and the relative importance of the Pecos gambusia that occur in the RRA. The 12 populations in the RRA represent 63 percent of the currently extant populations. The presence of these populations in a relatively isolated part of BLNWR may provide the best security for the species of any of the four major population areas. Principal threats to Pecos gambusia are loss of spring flow in its isolated habitats and destruction of habitat through introduction of predators or changes in water quality. Several of these threats are outside RRA's-management control. However, RRA is responsible for management of oil and gas leasing and development that has the potential to adversely affect Pecos gambusia. The Roswell DRMP/EIS proposes the closure of the Refuge and the Salt Creek Wilderness Area to future oil and gas leasing. But, there are presently three developed Federal leases on the southeast corner of the BLNWR. There are also leases adjacent to the Refuge, particularly ones in the 100-year floodplain of the Pecos River directly north of the refuge. Oil and gas development in the 100-year floodplain carries the risk of surface spills that could sink into the aquifer and the risk of overland transport of contaminants during floods. If well

heads are broken or damaged by flood debris, serious contamination of the river could result. The aquifers that supply water to the springs on BLNWR and the Salt Creek Wilderness Area are porous from voids in the limestone and gypsum through which water flows. Drilling through these voids creates the possibility of introducing drilling fluids into void areas and later the possibility of petrochemical contamination if casing failures occur. Existing management plans and the Roswell DRMP/EIS apply various leasing stipulations, lease notices, and conditions of approval to avoid or mitigate potential adverse impacts of oil or gas lease development. These measures will greatly reduce, but may not completely eliminate, accidental spills of petroleum or petroleum byproducts, or casing failures that could contaminate aquifers.

Given the limited habitat of Pecos gambusia, a single accident in the wrong place could extirpate either the Refuge populations or the Salt Creek Wilderness population. If the populations on the Refuge were lost, it could reduce the species below the level of possible recovery. Introductions and reintroductions have had variable success, and can not be counted on to replace lost populations. It is essential to the survival of Pecos gambusia that all present populations be maintained. Therefore, it is the Service's opinion that oil and gas leasing and development directed under current management plans and proposed under the Roswell DRMP/EIS would be likely to jeopardize the continued existence of the Pecos gambusia.

REASONABLE AND PRUDENT ALTERNATIVE FOR PECOS GAMBUSIA

Regulations (50 CFR §402.02) implementing section 7 define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that (1) can be implemented in a manner consistent with the intended purpose of the action, (2) can be implemented consistent with the scope of the action agency's legal authority and jurisdiction, (3) are economically and technologically feasible, and (4) would, the Service believes, avoid the likelihood of jeopardy to the continued existence of listed species or destruction or adverse modification of critical habitat. Therefore, jeopardy to the Pecos gambusia would not be likely to result if all elements of the following reasonable and prudent alternative are implemented:

1. Use the best available hydrologic information to map the source and movement of water that supplies springs occupied by Pecos gambusia on the BLNWR and the Salt Creek Wilderness. Close the lands within the mapped area to oil and gas leasing unless or until BLM can demonstrate that mandatory protective measures will ensure no aquifer contamination.

2. For existing leases within the mapped area, apply appropriate measures taken from BLM's "Practices for Oil and Gas Drilling and Operations in Cave and Karst Areas' and any other appropriate measures to ensure no contamination of water that supplies springs occupied by Pecos gambusia on the BLNWR and the Salt Creek Wilderness. Use monitoring procedures that will detect any surface or subsurface accidents soon enough that they can be discovered and corrected before significant harm to the aquifer occurs.
3. Continue the policy contained in the Interim Oil and Gas Leasing and Development EA (BLM 1995) of selling no new oil and gas leases on lands with 1 00-year floodplains, unless or until BLM can demonstrate that other mandatory protective measures will provide equivalent protection.
4. The Roswell DRMP/EIS (BLM 1994) contains proposed surface use and occupancy requirements for oil and gas activities in floodplains. It states, "No surface occupancy would be allowed within floodplains or within 200 meters of the outer edges of 100-year floodplains, to protect riparian areas' (Appendix 3). Change the wording of this sentence to indicate the purpose of the policy is to protect the integrity of the 100-year floodplain, not just riparian areas within the floodplain.
- 5 . Several possible exceptions are identified for the no surface occupancy policy identified above. Eliminate any exceptions that could contribute to potential contamination of Pecos gambusia habitat.
6. The Roswell Resource Area Proposed Resource Management Plan/Final Environmental Impact Statement (BLM 1997) contains 141 COAs (Appendix 4) for oil and gas operations and other activities. The COAs number 109-118 apply to floodplain development. Compile these COAS, other COAs that may apply to floodplain development, and any other applicable information into a single guidance document for availability to floodplain lease holders.

Interior Least Tern

Status of the Species (Range-wide)

Much of this information on the interior least tern (*Sterna antillarum*) is from the *Interior Population of the Least Tern Recovery Plan* (USFWS 1990). The interior least tern was listed as an endangered species on June 27, 1985 (50 FR 21 784) in the states of Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana (Mississippi River and its tributaries north of Baton Rouge), Mississippi (Mississippi River), Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Tennessee, and Texas (except within 80 km of the Gulf Coast). The interior least tern is listed as endangered under State laws in Arkansas, Illinois, Indiana, Iowa, Missouri, Nebraska, Tennes-

see, Texas, Kansas, Kentucky, New Mexico (group 2), Oklahoma, and South Dakota. Although not legislatively designated as endangered in North Dakota, the interior least tern is regarded as endangered by the North Dakota Game and Fish Department and conservation organizations within the State.

The interior least tern, as the name implies, is -the smallest North American tern (approximately 9 inches with about a 20 inch wingspan). Adults are characterized by a gray back, a white belly and neck with a black nape and cap, a white forehead, yellow legs, and a yellow bill with a black tip. Juveniles are buffy-gray above with pinkish bill and legs and no black cap, but with black patches around the eyes. First summer individuals have a black bill, legs, and nape, with a gray back. Least terns have a short forked tail and a black leading edge on the outer wing. Jackson (1976) described the developmental stages of least tern chicks. Massey and Atwood (1978) and Thompson and Slack (1983) presented further details on plumage development and variation.

The interior least tern is migratory, with a breeding range extending from Texas to Montana and from eastern Colorado and New Mexico to southern Indiana. The breeding range includes the Red, Missouri, Arkansas, Mississippi, Ohio and Rio Grande river systems (American Ornithologists' Union 1957, Anderson 1971, Coues 1874, Burroughs 1961, Hardy 1957, Youngworth 1930, Ducey 1985). Incidental occurrences of least terns have been reported in Michigan, Minnesota, Wisconsin, Ohio, and Arizona (Campbell 1935, Janssen 1986, Jung 1935, Mayfield 1943, Monson and Phillips 1981, Phillips et al. 1964).

In New Mexico, interior least terns breed annually at or in the vicinity of BLNWR. They are not known to breed elsewhere in the State. In the summer of 1996, interior least terns were observed at Dexter National Fish Hatchery (DNFH) about 15 miles south of BLNWR. Individual least terns show up regularly at sites in central and western New Mexico primarily during spring migration. They are regular vagrants at Bosque del Apache NWR in the Rio Grande, often in association with migrating Forster's terns (*Sterna forsteri*) and/or black terns (*Chlidonias niger*). They are usually found feeding and roosting in constructed ponds on the Refuge, but possibly use the river if the water levels are low and prey abundant. It is unlikely that least terns will use the Rio Grande channel during higher flows due to the lack of exposed sand bars for roosting habitat and difficulty feeding. Vagrant least terns remain in the area for varying lengths of time. The New Mexico Department of Game and Fish considers the least tern to be a migrant along the Pecos River in Eddy County and it has occurred as a vagrant in Catron, Rio Arriba, Doña Ana, Socorro, and Otero counties.

Life History

Interior least terns feed on small fish in shallow waters of rivers, streams, and lakes. Other least terns are known to feed on crustaceans, insects, mollusks, and annelids (Whitman 1988). Least terns usually feed close to their nesting sites and forage by hovering and diving over standing or flowing water. Moseley (1976) believed least terns to be opportunistic foragers, exploiting any fish within a certain size range. Radio telemetered least terns at Salt Plains NWR often traveled 3.2-6.4 km to feed (Talent and Hill 1985)

Interior least terns spend about 4-5 months at their breeding sites. They arrive at breeding areas from late April to early June (Faanes 1983, Hardy 1957, USFWS 1987b, Wilson 1984, Wycoff 1960, Youngworth 1930). Courtship behavior of least terns is similar throughout North America. Courtship occurs at the nesting site or at some distance from the nest site (Tomkins 1959). It includes the fish flight, an aerial display involving pursuit and maneuvers culminating in a fish transfer on the ground between two displaying birds. Other courtship behaviors include nest scraping, copulation and a variety of postures, and vocalizations (Ducey 1988, Hardy 1957, Wolk 1974).

The nest is a shallow and inconspicuous depression in an open sandy area, gravelly patch, or exposed flat. Small stones, twigs, pieces of wood, and debris usually lie near the nest. Least terns nest in colonies or ternaries, and nests can be as close as a few meters apart or widely scattered up to hundreds of meters (Ducey 1988, Anderson 1983, Hardy 1957, Kirsch 1990, Smith and Renken 1990, Stiles 1939). The benefit of semi-colonial nesting in least terns may be related to anti-predator behavior and social facilitation (Burger 1988). Colonial nesting is not always the case on BLNWR. Individual least terns have nested on playas located 3.5 miles from the next closest nesting terns (W. Radke, BLNWR, pers. comm. 1997).

Interior least terns usually lay two or three eggs (Anderson 1983, Faanes 1983, Hardy 1957, Kirsch 1987-89, Sweet 1985, Smith 1985). The average clutch size for interior least terns nesting on the Mississippi River during 1986-1989 was 2.4 eggs (Smith and Renken 1990). Egg-laying begins by late May. Both sexes share incubation, which generally lasts 20-25 days, but ranges from 17-28 days (Faanes 1983, Hardy 1957, Moser 1940, Schwalbach 1988). The precocial behavior of interior-least tern chicks is similar to that of other least terns. They hatch within 1 day of each other, are brooded for about 1 week, and usually remain within the nesting territory, but wander further as they mature. Fledgling occurs after 3 weeks, although parental attention continues until migration (Hardy 1957, Massey 1972, 1974; Tomkins 1959). Departure from colonies by both adults and fledglings varies but is usually complete by early September (Bent 1921, Hardy 1957, Stiles 1939).

APPENDIX 11

The interior least tern's annual reproductive success varies greatly along a given river or shoreline. Because terns use ephemeral habitats, they are susceptible to frequent nest and chick loss. Consequently, there are great local differences in productivity. In 1987, total number of interior least terns reached 4,800 rangewide. This is considerably higher than the 1,200 interior least terns estimated in a partial survey in 1975 by Downing (1980). There are no comprehensive historical numbers to compare with these figures, although early qualitative descriptions indicate that the interior least tern was rather common (Burroughs 1961, Hardy 1957). Increased censusing efforts during the past few years probably account for the differences among recent census figures and earlier surveys.

Breeding site fidelity of coastal and California least terns is very high (Atwood *et al.* 1984, Burger 1984). This may also be true for the interior least tern in its riverine environment. An interior least tern banded in 1988 as a breeding adult on the Missouri River in North Dakota returned in 1989 to breed on a Missouri River sandbar in North Dakota (Mayer and Dryer 1990). In the Mississippi River valley, a bird banded as a breeding adult in 1987 was observed nesting at the same site in 1989, and three others banded as breeding adults in 1988 returned to nest within the same stretch of the Mississippi River in 1989 (Smith and Renken 1990). Two of those birds had returned to within 4.8 km of their former nesting site. Along the Platte River in Nebraska, interior least terns demonstrate a strong return pattern to previous nesting sites on the river and at sand and gravel pits regardless of reproductive success (USFWS 1990).

There are also some observed exceptions to strong breeding site fidelity. One interior least tern captured in 1987 as a breeding adult at a Mississippi River ternery in Missouri had been banded as a chick in 1980 by Marsha Waldron.- this bird was nesting at a site 131 km upriver from its natal Tennessee colony (Smith 1987, Smith and Renken 1990). Boyd and Thompson (1985) reported a breeding Kansas bird that had been banded as a chick on the Texas coast.

The interior least tern's home range during the breeding season usually is limited to a reach of river near the sandbar nesting site. At Salt Plains NWR, home ranges were highly variable, ranging from 11 to 1,015 ha (Talent and Hill 1985). Variation likely was due to food limitations and chick loss. The home range may change if renesting birds select a different breeding site. At sand and gravel pits along the central Platte River in Nebraska, nesting interior least-terns-utilize.-the pit area as well as an adjacent stretch of river. Nesting territories are defended and birds defend any nest in the colony. In defending the territory, the incubating bird will fly up and give an obvious alarm call followed by repeated dives at the intruder (Hardy 1957). The strong defense of territories facilitates locating ternaries during census surveys.

Threats

Barren sandbars, the interior least tern's most common nesting habitat, were once a common feature of the Mississippi, Missouri, Arkansas, Ohio, Red, Rio Grande, Platte, and other river systems in the central United States. Sandbars are still common at normal river stages on the Lower Mississippi River and on portions of other river systems. Sandbars generally are not stable features of the natural river landscape, but are formed, enlarged, disappear, or migrate depending on the dynamic forces of the river. However, stabilization of major rivers to achieve objectives for navigation, hydropower, irrigation, and flood control has destroyed the dynamic nature of these processes (Smith and Stucky 1988). Many remaining sandbars are unsuitable for nesting because of vegetation.

Channelization, irrigation, and the construction of reservoirs and pools have contributed to the elimination of much of the tern's sandbar nesting habitat in the Missouri, Arkansas, and Red river systems (Funk and Robinson 1974, Hallberg *et al.* 1979, Sandheinrich and Atchison 1986). Ducey (1985), for example, describes the changes in the channel characteristics of the Missouri River since the early 1900's under the Missouri River Bank Stabilization and Navigation Project. The wide and braided character of the Missouri River, like other rivers, was engineered into a single narrow navigation channel. Most sandbars virtually disappeared between Sioux City, Iowa and Saint Louis, Missouri (Sandheinrich and Atchison 1986, Smith and Stucky 1988). Where sandbars still occur along the Nebraska-South Dakota boundary (Missouri River), approximately 3,156 ha of sandbar habitat were lost between 1956 and 1975 (Schmulbach *et al.* 1981). Sandbars along the Nebraska-Iowa Missouri River boundary have been virtually eliminated with the exception of 890 ha inventoried along the 80-km Missouri National Recreation Area (Schmulbach *et al.* 1981).

Regulation of dam discharges pose additional problems for interior least terns nesting in remaining habitats. Summer flow patterns were more predictable before regulation of river flows. Peak flows occurred in March from local runoff and then again in May and June when mountain snowmelt occurred. Flows then declined during the rest of the summer allowing interior least terns to nest as water levels dropped and sandbars became available (Stiles 1939, Hardy 1957). Currently, main stem systems are regulated for hydropower, navigation, water supply, flood control, irrigation, and public recreation. The demands are unpredictable and flows can fluctuate greatly. Managed flow regimes differ greatly from historic regimes. High flow periods may now extend into the normal nesting period, thereby reducing the quality of existing nest sites and forcing interior least terns to initiate nests in poor quality locations. Extreme fluctuations can flood existing nests, inundate potential nesting areas, or dewater feeding areas. Interior least

terns along the Arkansas River in Oklahoma and Arkansas contend with dam discharge problems similar to those on the Missouri River.

Reservoir storage of flows responsible for scouring sandbars has resulted in the encroachment of vegetation along many rivers such as the Platte River, Nebraska, and greatly reduced channel width (Currier *et al.* 1985, O'Brien and Currier 1987, Eschner *et al.* 1981, Lyons and Randle 1988, Sidle *et al.* 1989, Stinnett *et al.* 1987). In addition, river main stem reservoirs now trap much of the sediment load, resulting in less aggradation and more degradation of the river bed and subsequently less formation of suitable sandbar nesting habitat. Riverine habitat along the central Platte River may require extensive vegetation clearing and other intensive management. In contrast, the lower Platte River (Columbus, Nebraska, to the Missouri River confluence) has not undergone as extensive habitat changes as the central Platte. During 1987-1989, riverine sandbar habitat hosted 72 percent of the nests on the lower Platte and only 12 percent of the nests on the central Platte (Kirsch 1989, Lingle 1989).

Many rivers have become the focus of recreational activities. Human presence reduces reproductive success (Mayer and Dryer 1988, Smith and Renken 1990). In mid-America, sandbars are fast becoming the recreational counterpart of coastal beaches. Even sand and gravel pits and other artificial nesting sites receive a high level of human disturbance.

Environmental Baseline for Interior Least Tern (in the Action Area)

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects that have undergone section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress.

Least terns were first documented nesting in New Mexico near BLNWR in 1949. Since then, the population has remained relatively small with little observable change. The birds predominately nest and forage at playa habitats at the refuge.

Water regulation of the Pecos River may eliminate suitable habitat along the river during critical portions of the breeding season. The BR and the Corps have consulted formally with the Service on their operation of Lake Sumner and Santa Rosa Lake (Cons. #2-22-91-F-198, August 5, 1991, and Cons. #2-22-92-F-240, March 22, 1993). The action under consultation with BR was the volume, timing, and length of water releases from the upstream reservoirs to supply water to Brantley Reservoir for irrigation. The pattern and timing of water releases from the reservoirs have a major effect on river morphology, which is likely detrimental to interior least tern habitat. As mentioned

under the range-wide threats, management of river flows for navigation, hydropower, irrigation, and flood control have destroyed the dynamic processes that create and maintain the sandbars preferred by the least tern. These same effects may be occurring on the Pecos River. In the consultations with BR and the Corps, the Service concluded their actions were not likely to jeopardize the interior least tern because no discernible linkage was known between the river and the various impoundments on the BLNWR utilized by the tern. Conservation recommendations included conducting breeding season surveys for least terns on the Pecos River from Santa Rosa to the Texas border, using aerial photography and video imagery to quantify least tern habitat along the river at various flow rates, and conducting analyses of least tern prey items for mercury, lead, and selenium.

The open habitat preferred by interior least terns is often attractive to ORV users, or may provide easy access to the river for hunting or fishing. Inspection of topographic maps indicates many access routes to the river on private land, some of which may cross suitable least tern habitat.

There are about 1,200 active ROWs managed under the RRA realty program. Most ROWs are issued for oil and gas related roads, pipelines, and powerlines. Some ROWs are in the river floodplain or directly adjacent to the floodplain. These roads improve access to the river, not only for oil and gas activities, but also for recreationists. The increased activity in the floodplain may make some areas less suitable as least tern foraging and nesting habitat.

Most of the Pecos River floodplain is used for cattle grazing. Much of the grazing on both private lands and BLM lands is on a year-round basis so cattle are in potential least tern habitats when birds might use the area.

Status of the Interior Least Tern (in the Action Area)

Interior least terns were first recorded breeding in New Mexico at BLNWR in 1949. They have bred annually at or in the vicinity of BLNWR since 1949 and are not known to breed elsewhere in New Mexico. Table 1 shows recent numbers and reproductive success of least terns breeding at BLNWR since 1989 (USFWS 1996).

Table 1. Recent observations and numbers of interior least terns at BLNWR.

Year	Adults	Chicks Produced	Number Fledged
1989	10 early July/3 pair nested	≥ 2 chicks	1 known fledged
1990	8 late June/3 pair nested	4 to 5 chicks	1 known fledged
1991	12 early July/5 pair nested	5 chicks	1 known fledged
1992	12 early July/5 pair nested	?	2 known fledged
1993	14 early July/7 pair nested	14 chicks	5 known fledged
1994	4 pair nested	9 chicks	4 known fledged
1995	7 pair nested	5 chicks (?)	3 known fledged
1996	7 pair nested	10 chicks	≥ 5 known fledged

The Pecos River within the RRA, particularly the DNFH area may provide suitable habitat for least terns to nest. This is based on observations of least terns at DNFH during the summer of 1996. These birds were seen feeding at hatchery ponds. Given the distance of about 15 miles from DNFH to BLNWR, - it is unlikely these birds were returning to nests at the refuge. Therefore, in 1996, some birds may have nested/summered off the refuge.

Effects of the Action

The Service's primary task in developing a biological opinion is to determine whether the proposed action is likely to jeopardize the continued existence of any listed species (50 CFR 402.14(g)(4)). The jeopardy/non-jeopardy determination is based on an evaluation of: (1) a species' status in the project area and rangewide (see above sections); (2) the effects of the proposed action on the survival and recovery of a listed species (including effects of interdependent and interrelated actions); (3) the aggregate effects of other Federal actions on a listed species (e.g., amount of take occurring as a result of Federal actions subject to previous consultations); and (4) the cumulative effects on a listed species (ie., future nonFederal actions that are reasonably certain to occur in the-action area).

Presently, most least tern activity in the RRA is on BLNWR. The Service has surface management responsibility for the Refuge. Reports of birds at DNFH in 1996 may indicate there were breeding/summering birds off the Refuge in that year.

The RRA has responsibility for several programs that affect potential least tern nesting and foraging habitat along the Pecos River. However, it remains uncertain if least terns

will ever use the river for habitat to any great degree. The RRA programs that may affect least tern habitat are recreation, oil and gas activities, and grazing. Most recreation in the RRA is dispersed. Typical recreational activities along the Pecos River may include hunting, fishing, water play, ORV activity, bird watching, and sightseeing. The Roswell DRMP/EIS proposes that ORV activity in the Pecos River floodplain be limited to designated roads and trails, but enforcement of this provision is difficult if any-access to the river exists.

The proposal to drill six wells in the Pecos River floodplain directly north of BLNWR is an example of a RRA-managed action that may affect potential least tern habitat. In addition to the noise, disturbance, and potential for spills from drilling, new ROWs would be granted for access to the well sites. These ROWs would create access to a previously roadless area and potentially attract recreationists seeking a way to the river. As a result of more human activity, this area would become less suitable for least terns. The RRA administers the mineral estate for about 15 percent of the floodplain, with about 6,900 acres presently leased.

The RRA administers 29 grazing allotments that include 6,700 acres of floodplain. Most of these allotments are a 'checkerboard' of public and private lands. No information was given on the grazing regimes for these allotments and information on potential habitat for least terns has not been mapped. Nevertheless, summer grazing could be detrimental in the floodplain portions of these allotments that are suitable for least terns.

Cumulative Effects

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities on endangered or threatened species or critical habitat that are reasonably certain to occur in the foreseeable future. The RRA administers only about 10 percent of the surface and 15 percent of the mineral estate along the Pecos River. Activities on private lands are similar to those just described for public lands and can be expected to continue.

The continued management of Pecos River water flows by the BR for irrigation and flood control likely has the greatest influence on potential least tern habitat along the river. Upstream dams have been in use for many years and there is no reliable record of the extent of sandbar habitat along the river before the dams. But, based on water management effects for rivers in the Mississippi River drainage, it is expected that management of the Pecos River has reduced least tern habitat. The BR management of the Pecos River is expected to continue much as it has in the past. The BR is planning to address water management of the river based on 5 years of research on the effects of water delivery scenarios on the river.

Conclusion

The interior least tern has a breeding range extending from Texas to Montana and from eastern Colorado and New Mexico to southern Indiana. This includes the Red, Missouri, Arkansas, Mississippi, Ohio, and Rio Grande river systems. In 1987, the total number of interior least terns reached 4,800 range-wide. The breeding colony of interior least terns in New Mexico has been using BLNWR since 1949. This colony has remained small, but relatively stable through the years. In 1996, seven pairs nested at BLNWR and produced 10 chicks. The colony in New Mexico represents only about 0.3 percent of the species, but is significant as the westernmost breeding colony. Most activity of the least terns in the RRA is confined to BLNWR where the Service has principal management responsibility. The presence of birds foraging at ponds at DNFH during the breeding season in 1996 indicates that some birds may be nesting/summering off the refuge. The possible effects of BLM-managed programs on the interior least tern in the RRA involve the yet-to-be confirmed least tern nesting on or near DNFH and possible effects to potential nesting habitat along the Pecos River. It is the Service's opinion that effects to the interior least tern or its habitat from BLM-managed activities are not likely to jeopardize the interior least tern's continued existence.

CONSERVATION RECOMMENDATIONS FOR THE INTERIOR LEAST TERN

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to current RRA management plans and the Roswell DRMP/EIS and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility. In order for the Service to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service requests notification of the implementation of the conservation recommendations.

The Service recommends that the following conservation recommendations be implemented -for the interior least tern:

- 1 . Conduct surveys for interior least terns during the breeding season in potential habitat on BLM lands.

2. If any breeding birds are found, develop a management strategy to protect the habitat. Management measures might include, but would not necessarily be limited to: (1) closure of the area to ORV use; (2) change of grazing regimes to remove cattle during the summer breeding period; and (3) designation of no surface occupancy for oil and gas leases to prevent the building of roads into the habitat.

INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of listed species of fish and wildlife without a special exemption. Harass is further defined as an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent to significantly disrupt normal behavior patterns. Normal behavior patterns include, but are not limited to, breeding, feeding, and sheltering. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the incidental take statement.

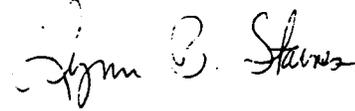
The Service anticipates that with implementation of the protective provisions included in the reasonable and prudent alternatives in this biological opinion, no Pecos bluntnose shiner or Pecos gambusia will be taken as a result of RRA management activities directed under current management plans and proposed under the Roswell DRMP/EIS. The Service anticipates no interior least terns will be taken as a result of RRA management activities directed under current management plans and proposed under the Roswell DRMP/EIS due to the present lack of least tern activity on lands under RRA management. Should any take occur, the RRA must reinitiate formal consultation with the Service and provide detailed information on circumstances surrounding the take.

REINITIATION - CLOSING STATEMENT

This concitides-formal consultation on the ongoing activities guided under the RRA management plans and proposed to be guided under the Roswell DRMP/EIS. As required by 50 CFR 402.16, reinitiation of formal consultation is required if: (1) Incidental take of Pecos bluntnose shiner, Pecos gambusia, and/or interior least tern occurs as a result of agency actions; (2) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat

APPENDIX 11

In future correspondence regarding this consultation, please refer to consultation number 2-22-96-F-128. Please contact Charlie McDonald at (505) 761-4525, if you have any questions or would like to discuss any part of this biological opinion.

A handwritten signature in cursive script, appearing to read "Lynn B. Starns".

cc: Director, BLM, Washington, D.C. (Attn: Ken Berg)
State Director, BLM, Santa Fe, NM (Attn: Andy Dimas)
District Manager, Roswell District, BLM, Roswell, NM
Regional Solicitor, DOI, Albuquerque, NM (Attn: Tonianne Baca)
Geographic Manager, Region 2 (NM)
Refuge Manager, Bitter Lake NWR, Roswell, NM
Supervisor, Ecological Services Field Office, Albuquerque, NM; Tulsa, OK;
and Austin, TX

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**BLM'S RESPONSE TO THE BIOLOGICAL
OPINION/REASONABLE AND PRUDENT ALTERNATIVES**



United States Department of the Interior

**BUREAU OF LAND MANAGEMENT
ROSWELL DISTRICT OFFICE
2909 West Second Street
Roswell, New Mexico 88201-2019**

**IN REPLY REFER TO:
6843 (06680)**

MAY 22 1997

Memorandum

To: Regional Director, Region 2, U.S. Fish and Wildlife Service, Albuquerque, New Mexico

From: Area Manager, Roswell Resource Area, Roswell, NH

Subject: Response to the Final Biological Opinion on the Roswell Resource Area Resource Management Plan (Cons. #2-22-96P-102)

On May 15, 1997, the Roswell Resource Area, Roswell District, Bureau of Land Management (BLM) received the final Biological Opinion (BO) on the Roswell Resource Area Resource Mmgement Plan/Environrwntal I*act-Statemht. The biological-opinion-addresses effects of the plan on the Pecos bluntnose shiner, Pecos gambusia, and interior least tern.

The BO defined one reasonable and prudent alternative comprised of six elements for the Pecos bluntnose shiner. Jeopardy to the shiner and adverse modification of critical habitat would not be likely to occur if all elements are irvlemented. Similarly, the BO defined one reasonable and prudent alternative comprised of six elements for the Pecos gambusia. Jeopardy to the gaukbusia would not be likely to occur if all elements are implemented.

The BO defined two conservation recommendations for the least tern. The term conser-vation recommendation is defined as service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information.

This memorandum serves as notification to the Service of the BLM's decision on the implementation of the reasonable and prudent alternatives, their respective elements, and conservation recommendations.

APPENDIX 11

The implementation timeline for the reasonable and prudent alternatives will be determined after further discussions with Service personnel to determine mutually agreeable dates for implementation.

Reasonable and Prudent Alternatives for the Pecos Bluntnose Shiner

Element 1

A monitoring program for the Pecos bluntnose shiner and its critical habitat will be established under guidance issued under the authority of the RMP. The monitoring program will be designed in coordination with the Service, and will meet the needs of detecting adverse impacts to the shiner so the impacts can be promptly corrected.

Element 2

Priority will be given to the North Pecos River ACEC in the implementation of management prescriptions that will most benefit shiner habitat. Priority will also be given to shiner habitat in the development and implementation of a strategic watershed management plan for the Pecos River (from confluence of Yeso Creek to Bitter Lake NWR).

Element 3

Within the 100-year floodplain, of the Pecos River, federal oil and gas parcels proposed for leasing through expressions of interest by individuals or companies, or those that expire, will not be offered for sale. The BLM will continue to apply mandatory protective measures for oil and gas development on existing leases in order to provide and demonstrate floodplain protection.

Element 4

The approved RMP will read, "Surface disturbance will not be allowed within up to 200 meters of the outer edge of 100-year floodplains to protect the integrity of the floodplains."

Element 5

The approved RMP will reflect that there will be no exceptions to the no surface disturbance policy in floodplains adjacent to critical or occupied Pecos Bluntnose shiner habitat except where such disturbances may be related to enhancement or protection of the habitat.

Element 6

Following the approval of the RMP, the BLM will consider compiling a set of practices relating to activities in the 100-year floodplain. A decision on whether to proceed with the development of such a document is tentatively scheduled for Fiscal Year 1998.

Reasonable and Prudent Alternative for the Pecos Gambusia

Element 1

The source and movement of water that supplies springs occupied by the Pecos gambusia on the BLNWR and Salt Creek Wilderness will be mapped in coordination with the USFWS, and others, using the best available hydrologic information. Within the mapped area, federal oil and gas parcels proposed for leasing through expressions of interest by individuals or companies, or those that expire, will not be offered for sale. The BLM will continue to apply mandatory protective measures for oil and gas development on existing leases in order to provide and demonstrate spring protection.

Element 2

Based on the above map, appropriate measures will be applied to oil and gas development on existing leases within the mapped area to ensure no contamination of water that supplies springs occupied by Pecos gambusia on the BLNWR and the Salt Creek Wilderness. A monitoring program will be designed in coordination with the Service to detect any surface or subsurface accident soon enough that they can be discovered and corrected before significant harm to the aquifer occurs.

Element 3

Within the 100-year floodplain of the Pecos River, federal oil and gas parcels proposed for leasing through expressions of interest by individuals or companies, or those that expire, will not be offered for sale. The BLM will continue to apply mandatory protective measures for oil and gas development on existing leases in order to provide and demonstrate floodplain protection.

Element 4

The approved RMP will read, "Surface disturbance will not be allowed within up to 200 meters of the outer edge of 100-year floodplains to protect the integrity of the floodplains."

Element 5

The approved RMP will reflect that there will be no exceptions to the no surface disturbance policy in floodplains adjacent to critical or occupied Pecos gambusia habitat except where such disturbances may be related to enhancement or protection of the habitat.

Element 6

Following the approval of the RMP, the BLM will consider compiling a set of practices relating to activities in the 100-year floodplain. A decision on whether to proceed with the development of such a document is tentatively scheduled for Fiscal Year 1998.

Conservation Recommendations for the Interior Least Tern

Conservation recommendations will be implemented immediately.

Recommendation 1

Surveys for the interior least tern will be conducted during the breeding season in potential habitat on BLM lands. Surveys will begin this year and will be conducted between June 1 and August 15, 1997.

Recommendation 2

Based on results of surveys, a management strategy to protect breeding habitat will be developed to include, but not necessarily limited to: (1) closure of the area to OHV use; (2) change of grazing regimes to remove cattle during the summer breeding period; and (3) designation of no surface occupancy for oil and gas leases to prevent the building of roads into the habitat.

Thank you for your assistance and cooperation. If you have any further questions or comments relative to this matter, please contact Dan Baggao at (505)627-0272.

S/TIM KREAGER

Timothy R. Kreager

United States Department of the Interior



BUREAU OF LAND MANAGEMENT
 ROSWELL DISTRICT OFFICE
 2909 West Second Street
 Roswell, New Mexico 88201-2019

IN REPLY REFER TO:
 6842(06680)

FEB 20 1998

Memorandum

To: Field Supervisor, Ecological Services Field Office, USFWS, Albuquerque, NM

From: Acting District Manager, Roswell, NM

Subject: Biological Opinion on the Roswell RMP (Cons. #2-22-96-F-128)

We are requesting reinitiation of formal Section 7 consultation on the Roswell Resource Management Plan (RMP) as required by 50 CFR 402.16(c). Our request is based on the implementation of the reasonable and prudent alternatives provided in the Biological Opinion (Cons. 2-22-96-F-102) for the Roswell Resource Area Draft RMP, and which are now incorporated into the Roswell Approved RMP and Record of Decision (ROD), where appropriate.

The Biological Opinion was primarily based on the Roswell Resource Area Draft RMP/Environmental Impact Statement (DRMP/EIS), Proposed RMP/Final EIS, Biological Assessment/Addendum and supplementary information. The Biological Opinion stated that the Roswell DRMP/EIS is not likely to jeopardize the continued existence of the interior least tern (*Sterna antillarum*), but likely to jeopardize the continued existence of the Pecos bluntnose shiner (*Notropis simus pecosensis*) and Pecos gambusia (*Gambusia nobilis*). It also stated that the Roswell DRMP/EIS is likely to adversely modify critical habitat designated for the Pecos bluntnose shiner.

We ask you to reconsider the original Biological Opinion based on the incorporation of the reasonable and prudent alternatives for the Pecos bluntnose shiner and Pecos gambusia, and conservation recommendations for the interior least tern, into the Roswell Approved RMP and ROD. Also, activities not requiring a land use decision have been pursued with the intent of carrying out the reasonable and prudent alternatives. The most significant activity is the development of a memorandum of understanding between the BLM and several agencies in order to cooperatively monitor habitat and populations of the Pecos bluntnose shiner and Pecos gambusia.

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We have included a copy of the Roswell Approved RMP and ROD, and a copy of the RMP Conformance and NEPA Adequacy Determination Report, which addresses the implementation of the reasonable and prudent alternatives with respect to approved land use planning documents and NEPA environmental analyses.

We request a Biological Opinion for the Roswell Approved RMP and ROD in order to complete and document the Section 7 consultation process conducted during the preparation and finalization of the Roswell RMP.

Please contact Dan Baggao at (505) 627-0272 if you need additional information in order to reinitiate formal consultation, or specific information in order to reconsider the original Biological Opinion.

S/TIM KREAGER

FOR Edwin L. Roberson

DBaggao:bah:2/20/98



United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 761-4525 Fax: (505) 761-4542

April 28, 1998

Memorandum

To: Acting District Manager, Roswell District, Bureau of Land Management,
Roswell, New Mexico

From: Acting Field Supervisor, New Mexico Ecological Services Field Office, U.S.
Fish and Wildlife Service, Albuquerque, New Mexico

Subject: Biological Opinion on the Roswell RMP (Cons. #2-22-96-F-102)

This responds to your request dated February 20, 1998, to reinstate formal Section 7 consultation on the Roswell Approved Resource Management Plan (RMP) and Record of Decision (ROD) dated October 1997. Your request is due to the fact that the biological opinion dated May 14, 1997, was based primarily on the Roswell Resource Area Draft Resource Management Plan/Environmental Impact Statement (DRMP/EIS) rather than on the final approved document. You state that the reasonable and prudent alternatives for the Pecos bluntnose shiner and Pecos gambusia, and the conservation recommendations for the interior least tern have been incorporated into the Roswell Approved RMP and ROD. Also, activities not requiring a land use decision have been pursued with the intent of carrying out the reasonable and prudent alternatives.

In most formal Section 7 consultations, agencies are requesting consultations on proposed actions. If jeopardy is found to any threatened or endangered species, the U.S. Fish and Wildlife Service (Service) provides reasonable and prudent alternatives that, if implemented, will remove jeopardy when the final action is undertaken. The Service considers the Roswell DRMP/EIS to represent a proposed action and the Roswell Approved RMP and ROD to represent the final action that resulted from the proposal. Incorporating the reasonable and prudent alternatives for Pecos bluntnose shiner and Pecos gambusia into the Roswell Approved RMP and ROD and/or implementing any reasonable and prudent alternatives not requiring a land use decision removes any jeopardy for the Roswell Approved RMP.

There is no need to reinstate consultation on the Roswell Approved RMP and ROD unless (1) incidental take of Pecos bluntnose shiner, Pecos gambusia, and/or interior least tern occurs as a result of agency actions; (2) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not considered in the biological opinion dated May 14, 1997 (Cons. #2-22-97-F-102); (3) the agency action is subsequently modified in a manner that causes an effect

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to the listed species or critical habitat that was not considered in the May 14, 1997, biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

If further clarification is needed on Section 7 consultation for the Roswell Approved RMP and ROD, contact Charlie McDonald at (505) 761-4525, ext. 112.

A handwritten signature in black ink that reads "R. Mark Wilson". The signature is written in a cursive, flowing style.

R. Mark Wilson

cc:

State Director, U.S. Bureau of Land Management, Santa Fe, New Mexico (Attn: Andy Dimas)

Area Manager, Roswell Resource Area, U.S. Bureau of Land Management, Roswell, New Mexico

Regional Solicitor, U.S. Department of the Interior, Albuquerque, New Mexico (Attn: Tonianne Baca)

Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, Albuquerque, New Mexico