

**ENVIRONMENTAL ASSESSMENT
FOR THE
TREATMENT OF SALT CEDAR AND OTHER NOXIOUS WEEDS
IN THE
CHICO ARROYO WATERSHED**

EA NM-010-02-032

**U.S. Department of the Interior
Bureau of Land Management
Albuquerque Field Office
New Mexico**

**FINDING OF NO SIGNIFICANT IMPACT AND DECISION RECORD
FOR THE
TREATMENT OF SALT CEDAR AND OTHER NOXIOUS WEEDS
IN THE
CHICO ARROYO WATERSHED**

EA.- NM-010-02-032

DECISION

I have reviewed this EA and determined that the proposed action with the mitigation measures described below will not have any significant impacts on the human environment and that an EIS is not required. I have determined that the proposed project is in conformance with the approved land use plan. It is my decision to implement the project with the mitigation measures below.

Cultural Resources Inventory is not required for herbicide treatments. Prior consultation with the State Historic Preservation Officer is not required (Protocol V.A.3; Appendix II, Other #2).

The impact to minority or low income populations or communities was considered and no significant impact is anticipated.

Mitigation Measures/Remarks

1. Herbicide application will conform to procedures found in BLM Handbook H-9011-1, and the Herbicide Label.
2. An approved Pesticide Use Proposal will be obtained prior to herbicide use.
2. All trash and unused materials will be removed and properly disposed of upon completion of the project.
3. Off road driving will be kept to a minimum and limited to dry ground, dry weather conditions. No off road driving will take place in the WSA's.
4. A cultural survey must be conducted prior to any manual or mechanical treatments, or the use of prescribed fire.
5. Herbicides will not be aerially applied over open water or on areas where sensitive riparian vegetation such as cottonwoods and willows is intermingled with the saltcedar.
6. Treatments and re-vegetation practices in WSA's will conform to WSA-IMP approved practices and use the minimum tool concept in their implementation. This will only apply to treatments other than the helicopter treatments which are considered to be the minimum tool and the least disturbing treatment method for the Phase I - III treatments.
7. In accordance with Section 124 of PL 104-208 - Omnibus Consolidated Appropriations Act of 1997 - which provides a framework by which the Bureau of Land Management (BLM) may fund work on private land which has direct benefit to biotic resources on public land. Treatments may be extended to include other property owners in the area, but only with their written and willing consent. For those areas not currently under special grazing management or exclusion from livestock an approved grazing management plan or cooperative agreement must be negotiated and in place prior to conducting any treatments under this EA.

FINDING OF NO SIGNIFICANT IMPACT

Based on the analysis contained in the attached Environmental Assessment, I have determined that the potential impacts are not expected to be significant and an Environmental Impact Statement is not required.

Assistant Field Office Manager

Date

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SECTION 1

PURPOSE AND NEED

INTRODUCTION

In accordance with the National Environmental Policy Act (NEPA) the following natural resources and uses have been considered in the preparation of this assessment: vegetation, rangeland management, soils, watershed, riparian resources, wildlife, special status animals and plants, wilderness, visual resources and recreation, air quality, Areas of Critical Environmental Concern, prime and unique farmlands, American Indian religious concerns, hazardous and solid wastes, wild and scenic rivers, and environmental justice.

The individual elements are mentioned in the narrative only when potential impacts have been identified.

PURPOSE & NEED FOR THE PROPOSED ACTION

The purpose of this EA is to unify various NEPA documents and to allow for the treatment of noxious weeds (especially saltcedar) under principals of Integrated Weed Management (IWM) on a single watershed (Chico Arroyo). The treatment of saltcedar is currently permitted under Coordinated Resource Management Plans (CRMP) for various segments of the Rio Puerco and Chico Arroyo which have been assessed as having riparian areas in various states of functionality. These riparian CRMPs were brought together under the FIES/HMP for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (August 2000). This document however is not considered to be site specific enough to properly analyze specific treatment options or potential impacts. Nor does it include non-BLM lands or areas within the Chico Watershed not administered by the Albuquerque Field Office.

Salt Cedar (*Tamarix ramosissima*), a federally and state listed noxious weed, is infesting the Chico Arroyo Watershed and must be removed or controlled to the best of our ability to do so (Executive Order 13112). These exotic and invasive plants draw excessive amounts of water from the soil, displace native plants, and are practically unusable for food, cover, or nesting substrate by native wildlife.

Additionally, in accordance with the above mentioned Executive Order, all federally and state listed noxious weeds within the watershed must be treated as well. The following noxious weeds have been identified as occurring on lands within the boundaries of the Albuquerque Field Office (AUFO).

- 1) **Russian Knapweed (*Centaurea repens*)**
- 2) **Musk Thistle (*Carduus nutans*)**
- 3) **Bull Thistle (*Cirsium vulgare*)**
- 4) **Canada Thistle (*Cirsium arvense*)**
- 5) **Scotch Thistle (*Onopordum acanthium*)**
- 6) **Hoary Cress (*Cardaria draba*)**
- 7) **Perennial Pepperweed (*Lepidium latifolium*)**
- 8) **Halogeton (*Halogeton glomeratus*)**
- 9) **Spotted Knapweed (*Centaurea maculosa*)**
- 10) **Dalmation Toadflax (*Linaria genistifolia*)**
- 11) **Yellow Toadflax (*Linaria vulgaris*)**
- 12) **Camelthorn (*Alhagi pseudalhagi*)**
- 13) **Yellow Starthistle (*Centaurea solstitialis*)**
- 14) **Saltcedar (*Tamarix spp.*)**
- 15) **Diffuse Knapweed (*Centaurea diffusa*)**
- 16) **Russian Olive (*Eleagnus angustifolia*)**

(This list may change over time due to new sightings or eradication of current populations.)

The treatment of noxious weeds within the Field Office Area is already permitted through The Noxious Weed Treatment EA (NM010-99-038) and has been included here to present more site specific analysis and to re-emphasize the need for treatment. These noxious weeds will be treated using Integrated Weed Management techniques, including: Cultural, Physical Control, Biological Control or Herbicides found in the H-9011-1 handbook, as populations within the watershed are discovered.

LOCATION, SETTING AND BACKGROUND

The Chico Arroyo Watershed is located approximately 60 miles northwest of Albuquerque, NM, in Sandoval, Cibola, and McKinley Counties [Township 12-21 North, Range 2-11 West]. Situated in the San Juan Basin on the Colorado Plateau, the Chico Watershed is a roughly elliptical and elongated area running along a northeast to southwest line. The watershed area drains approximately 1,365 mi². The watershed is bounded on the North and West by the Continental Divide, on the South by Mt. Taylor, and on the East by the Rio Puerco. The principal tributaries to the Chico Arroyo are the Torreón Wash and the Piedre Lumbre Arroyo (See Map 1-1). The Chico Watershed empties into the Rio Puerco which empties into the Rio Grande which eventually empties into the Gulf of Mexico.

Ownership of the lands within the watershed is a complex mixture of BLM, USFS, Navajo Reservation, BIA Tribal Trust, State, and Private. Public Lands within the Chico watershed are managed by the Albuquerque Field Office (AUFO) and the Farmington Field Office (FFO) (See Map 1-2).

The Chico watershed contains portions of 3 Wilderness Study Areas (WSAs), 3 Areas of Critical Environmental Concern (ACEC's), and 5 Special Management Areas (SMA's) (See Map 1-4).

The watershed has a variety of topographic features, ranging from the summit of Mt Taylor to mesas and canyons to valley bottoms. Vegetation on the watershed varies from mixed conifer forest (on the higher elevation slopes of Mt. Taylor) to dense stands of piñon-juniper on the slopes of Mesa Chivato, to grasslands along the Chico Arroyo valley bottom. Major valley-bottom vegetation consists primarily of alkali sacaton, blue grama, galleta, squirreltail, rabbitbrush, fourwing saltbush, shadscale and greasewood. Elevations within the watershed vary from 5,900 to over 11,000 feet.

While the Chico watershed extends to elevations over 11,000 ft, the actual treatment area will only extend to the lower mesa tops at approximately 7,500 ft.

The watershed has a semi-arid climate, with a considerable range of temperature and precipitation due to the differences in topography. Precipitation varies from approximately 8 to 24 inches annually, with approximately 50 percent coming as monsoonal thunderstorms in July, August and September.

The area has been grazed by a combination of sheep and cattle since the early 1800s (See Map 1-3).

PLAN CONFORMANCE

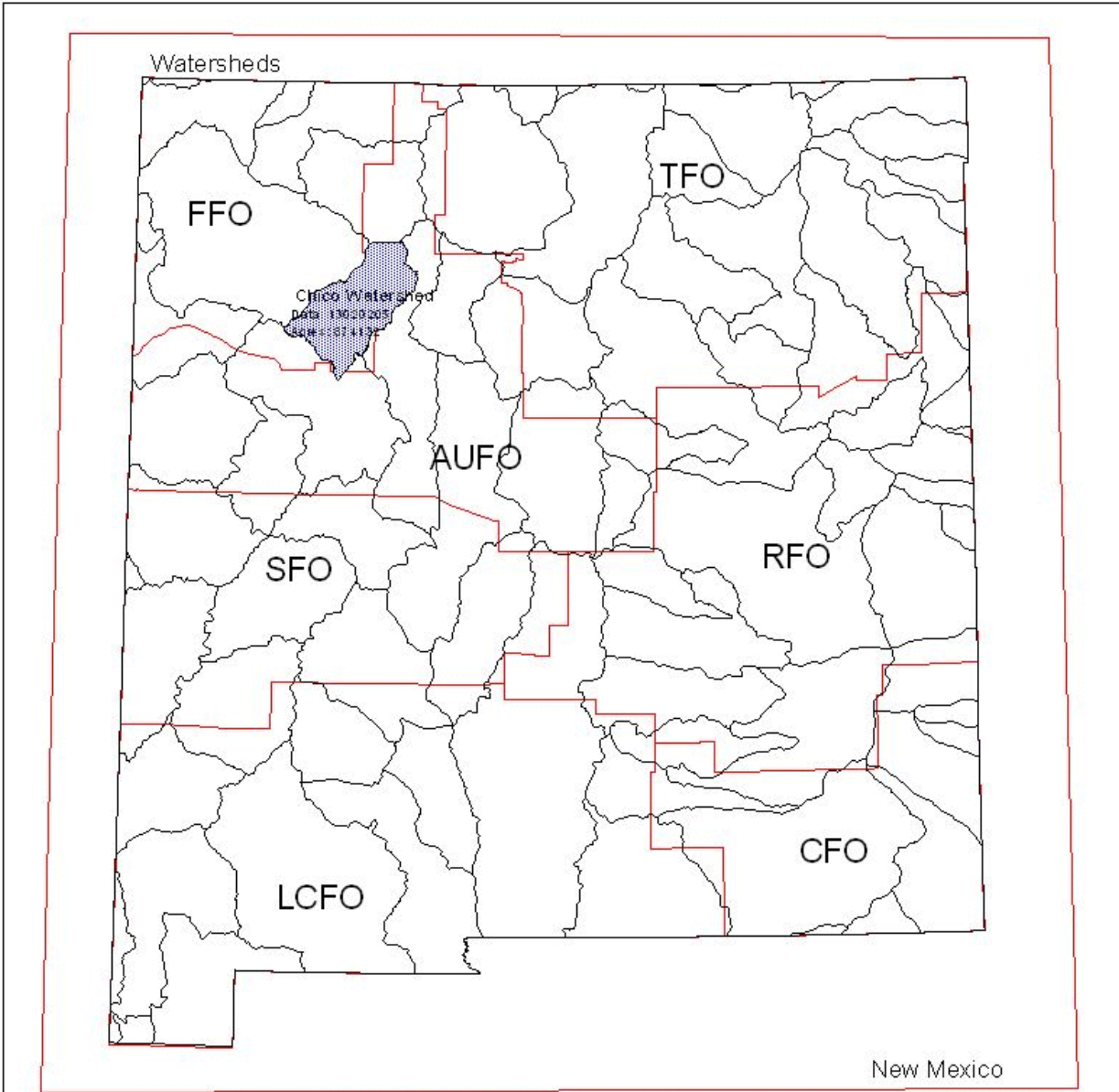
This proposed action is subject to the Rio Puerco RMP, Dated: Oct. 1992 (rev.). This plan has been reviewed to determine if the proposed action conforms with the land use plan's terms and conditions as required by 43 CFR 1610.5. Specifically, on Pg. 50 "...noxious weeds are controlled where spot infestations occur...", and Pg. 51 item 14, "Chemical Treatment" for control of noxious weeds.

This proposed action is also subject to and in accordance with the following:

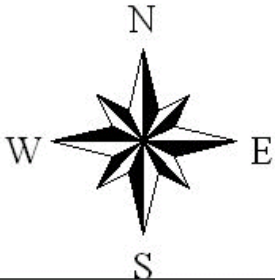
Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management; February 22, 2000 (65 FR 8834).

Rio Puerco Watershed Act; H12212, Omnibus Parks And Public Land Mgt. Act, October 1, 1996, Title IV-- Rivers And Trails, Sec. 402.

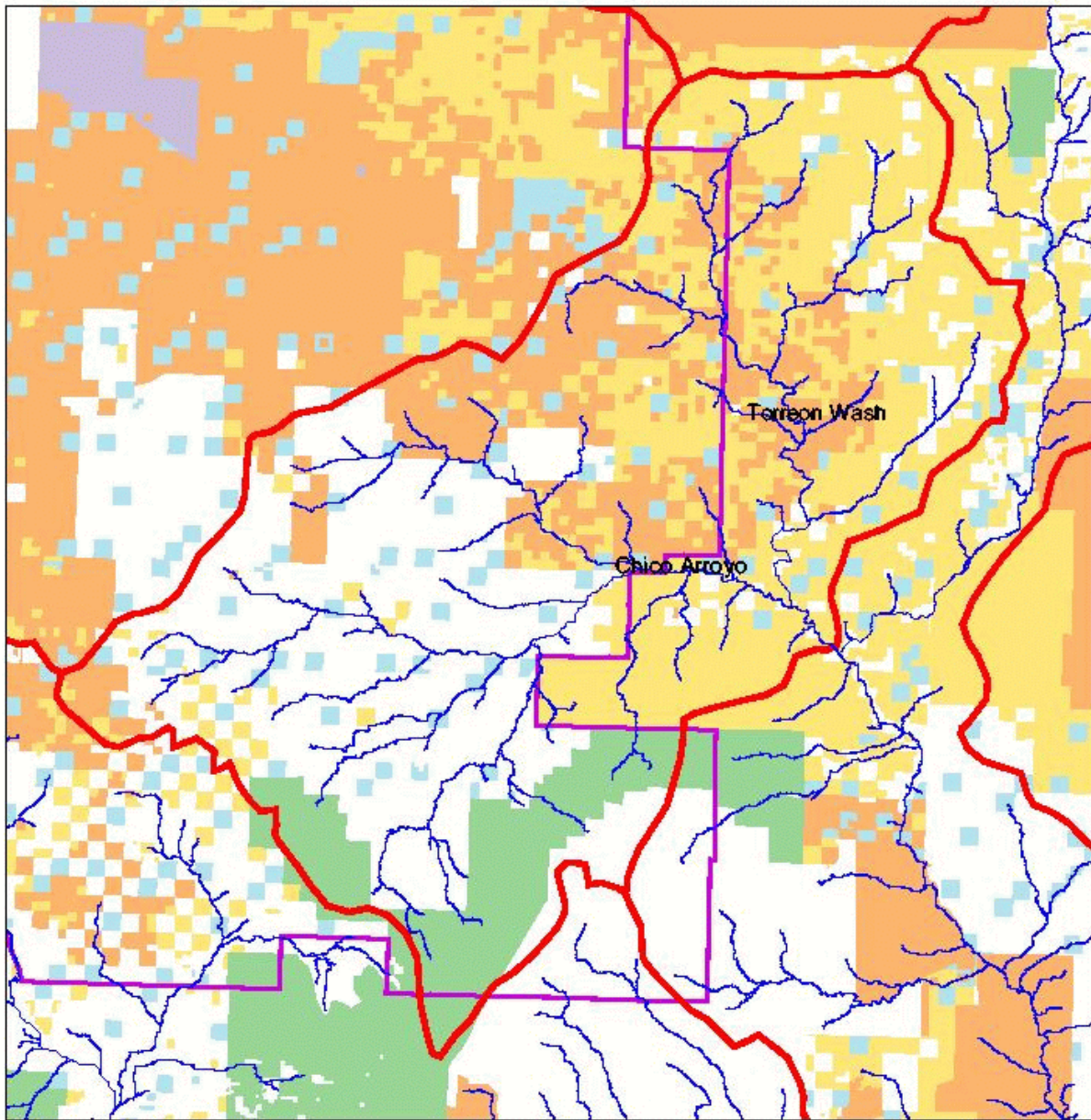
The Final EIS for Vegetation Treatment on BLM Public Lands ROD, July 1991, provides for the use of chemical control as one technique in an integrated management program. Appendix I, "Target Plant Species" Identifies Salt cedar, Tamarix spp. as a target species in New Mexico for chemical treatment. The proposed action meets the priority 1 selection criteria for vegetative treatment



Treatment Area
T. 12-21N, R. 2-11W



Map 1-1



LOCATION MAP



T. 12-21N, R. 2-11W

 Watershed Boundary

Produced by the Bureau of Land Management



Map prepared on April 24, 2002

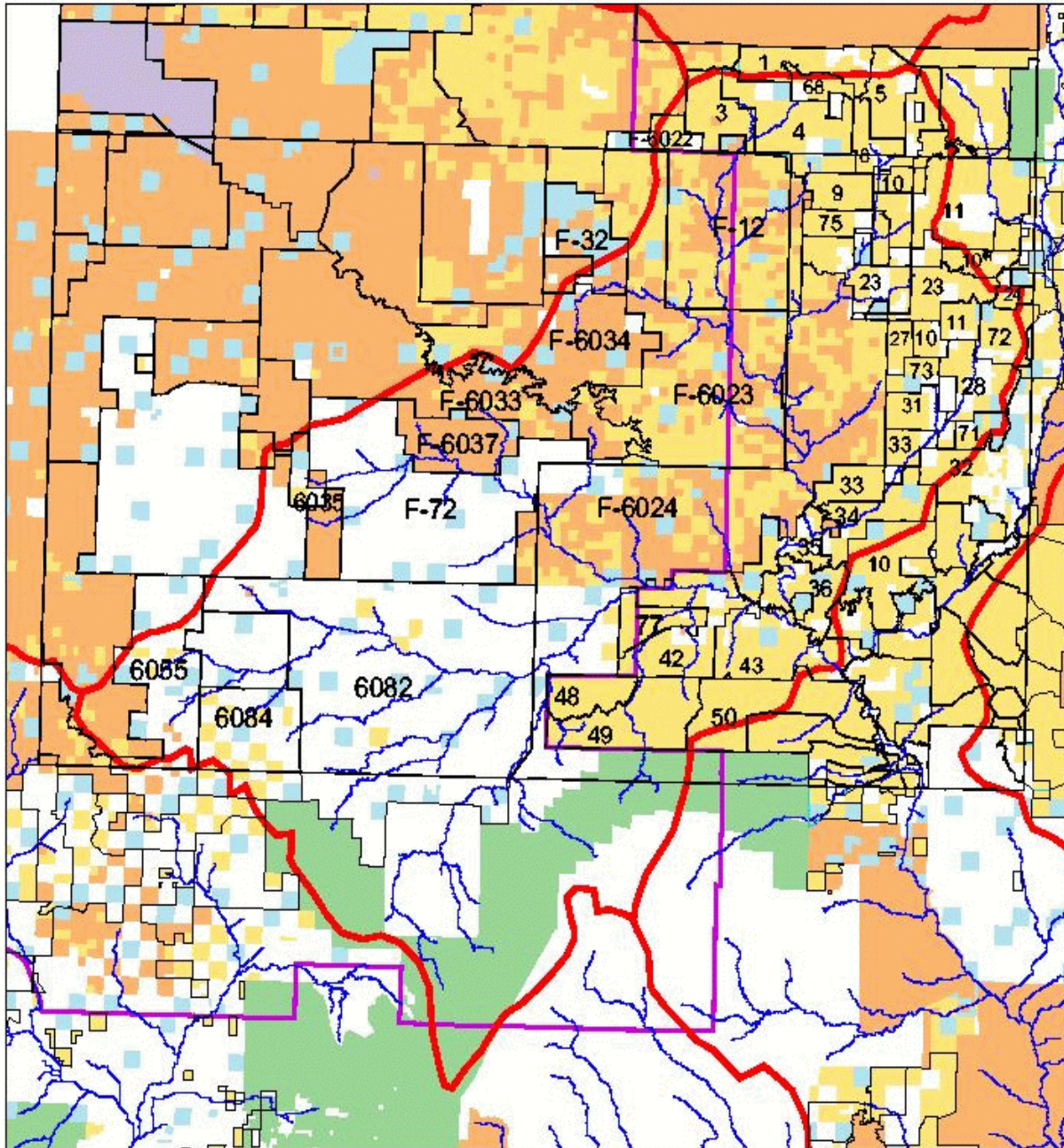


Map 1-2

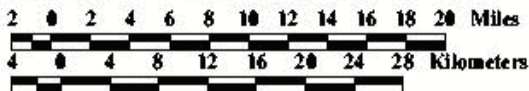
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM.

Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

Statewide Land Status Legend			
	Bureau of Land Management		Tribal Lands
	Bureau of Reclamation		National Park Service
	Dept. of Agriculture		Private
	Dept. of Defense		State Game & Fish
	Dept. of Energy		State Park
	Forest Service		
	Fish & Wildlife Service		



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LOCATION MAP



Produced by the Bureau of Land Management



Map prepared on April 25, 2002



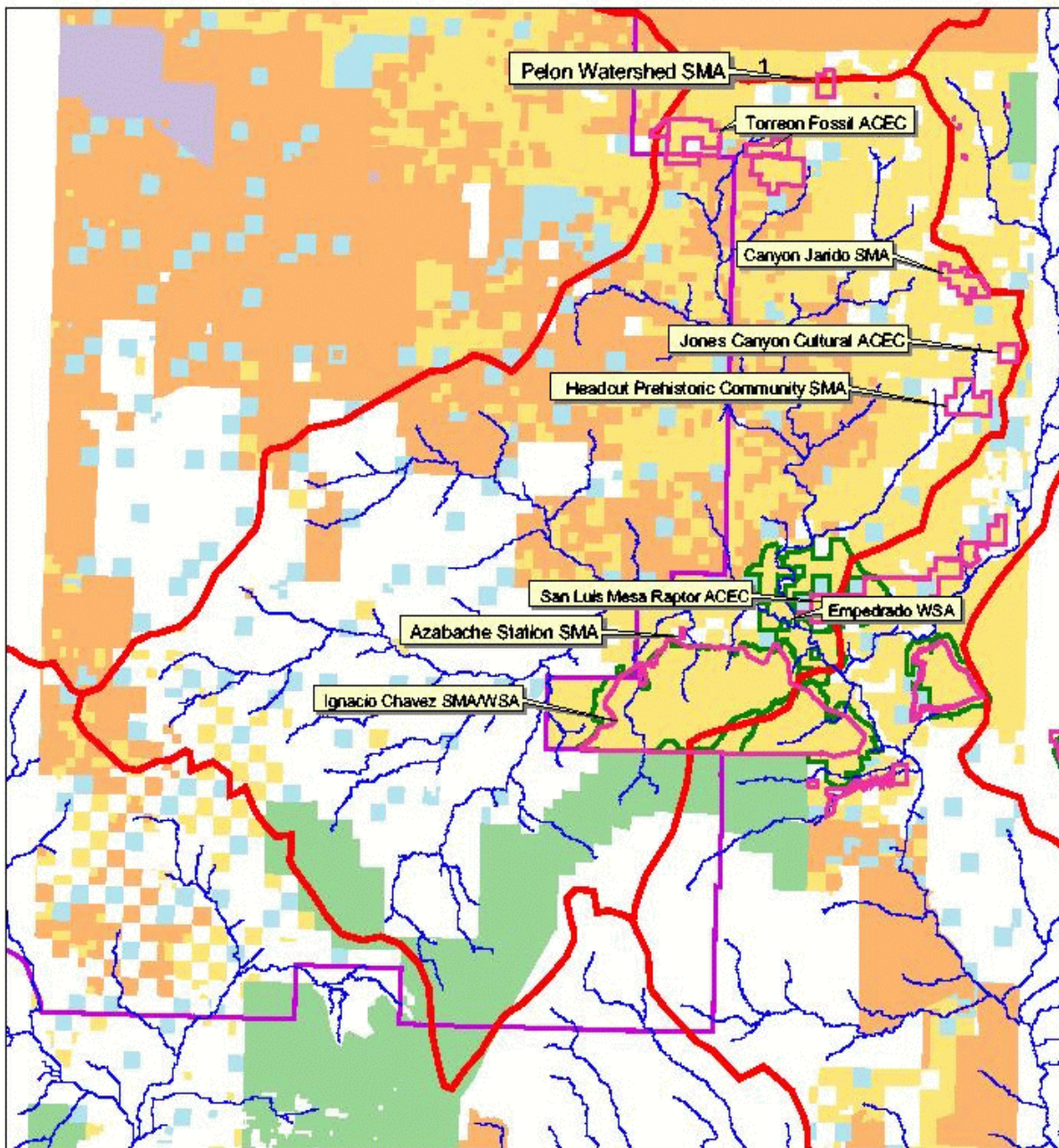
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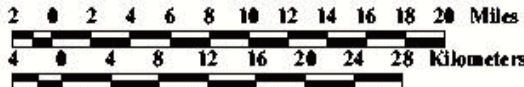
Statewide Land Status Legend

Bureau of Land Management	Tribal Lands
Bureau of Reclamation	National Park Service
Dept. of Agriculture	Private
Dept. of Defense	State
Dept. of Energy	State Game & Fish
Forest Service	State Park
Fish & Wildlife Service	

Map 1-3



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LOCATION MAP



T. 12-21N, R. 2-11W



Watershed Boundary

Produced by the Bureau of Land Management



Map prepared March 13, 2002



Map 1-4

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Forest Service	State Park
Fish & Wildlife Service	

Albuquerque Riparian & Aquatic Habitat Management Plan/EIS amendment to the Rio Puerco RMP provides a specific decision for this proposal. In Table 3-2, on page 3-9 , Arroyo Chico - Implement Management Actions: "Control Tamarisk".

Southwestern Willow Flycatcher Management Plan - Rio Puerco Resource Area, April 1998; lists "Salt Cedar Control" as a habitat restoration action for the Azabache and Seccion Arroyo segments of the Chico Arroyo.

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.)

Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. 4701 et seq.)

Lacey Act, as amended (18 U.S.C. 42)

Federal Plant Pest Act (7 U.S.C. 150aa et seq.)

Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2801 et seq.)

Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)

Section 124 of PL 104-208 - Omnibus Consolidated Appropriations Act of 1997 - which provides a framework by which the Bureau of Land Management (BLM) may fund work on private land which has direct benefit to biotic resources on public land.

Executive Order 13112 - Invasive Species, February 3, 1999: to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause

Instruction Memorandum NM-010-99-01; AFO Weed Prevention Schedule, May 14, 1999: Goal 5 - Integrated Weed Management (IWM) - The Field office will determine the best management options using a combination of the four general categories identified for weed management Cultural, Physical Control, Biological Control or Herbicides.

BLM Interim Management Policy for Lands Under Wilderness Review (IMP, 1995): Under Chapter III, C.2. - "Vegetative manipulation by chemical, mechanical, or biological means will be permitted for: control of noxious weeds and individual exotic plants such as tamarisk when there is no effective alternative and when control of the noxious weed or exotic plant is necessary to maintain the natural ecological balances within a WSA or portion of a WSA".

SECTION 2

PROPOSED ACTION AND ALTERNATIVES

INTRODUCTION

Currently, only two Integrated Weed Management (IWM) methods have proven to be successful in the treatment of saltcedar. The first, which has been used successfully in the middle Rio Grande valley, involves the use of bulldozers pulling root plows and rakes to remove the saltcedar plants and all root fragments. The uprooted plant material is then piled and burned. The second method involves the use of herbicide. Herbicide may be applied directly to the foliage of the plant or to the basal stem area (either to the cut stump or bark). Herbicides used today include Garlon 4 for basal stem treatments, or arsenal as either foliar or basal stem treatments. Arsenal may also be mixed with Roundup as a foliar treatment. This mixture reduces the cost of application, reduces the amount of herbicide used, and has a synergistic effect which is more effective at reduced rates than arsenal alone. When used correctly these methods of treatment will produce 90-99% initial kill rates.

Any treatment or combination of treatments will require a minimum of 5 years of monitoring and retreatment as needed to ensure successful control of the weed populations.

Other manual, mechanical, and cultural Integrated Weed Management techniques such as cutting, or burning are not effective on saltcedar and in fact encourage sprouting from buds on stems and roots. Therefore, these treatment methods will not be considered further.

Biological controls for saltcedar are currently in early developmental stages and cannot be used in this area due to endangered species concerns. Therefore, this treatment method will not be considered further.

The use of bulldozers, root plows, and rakes causes a tremendous amount of surface disturbance (down to approximately 5 ft) over the entire treatment area. This amount of surface disturbance is incompatible with Wilderness Study Area IMP guidelines. It also requires broad flat valley bottoms to operate the machinery in. The Chico Arroyo watershed contains only narrow incised channels. It would also require a 100% cultural survey for the watershed which is technically and financially unfeasible. Therefore, this treatment method will not be considered further.

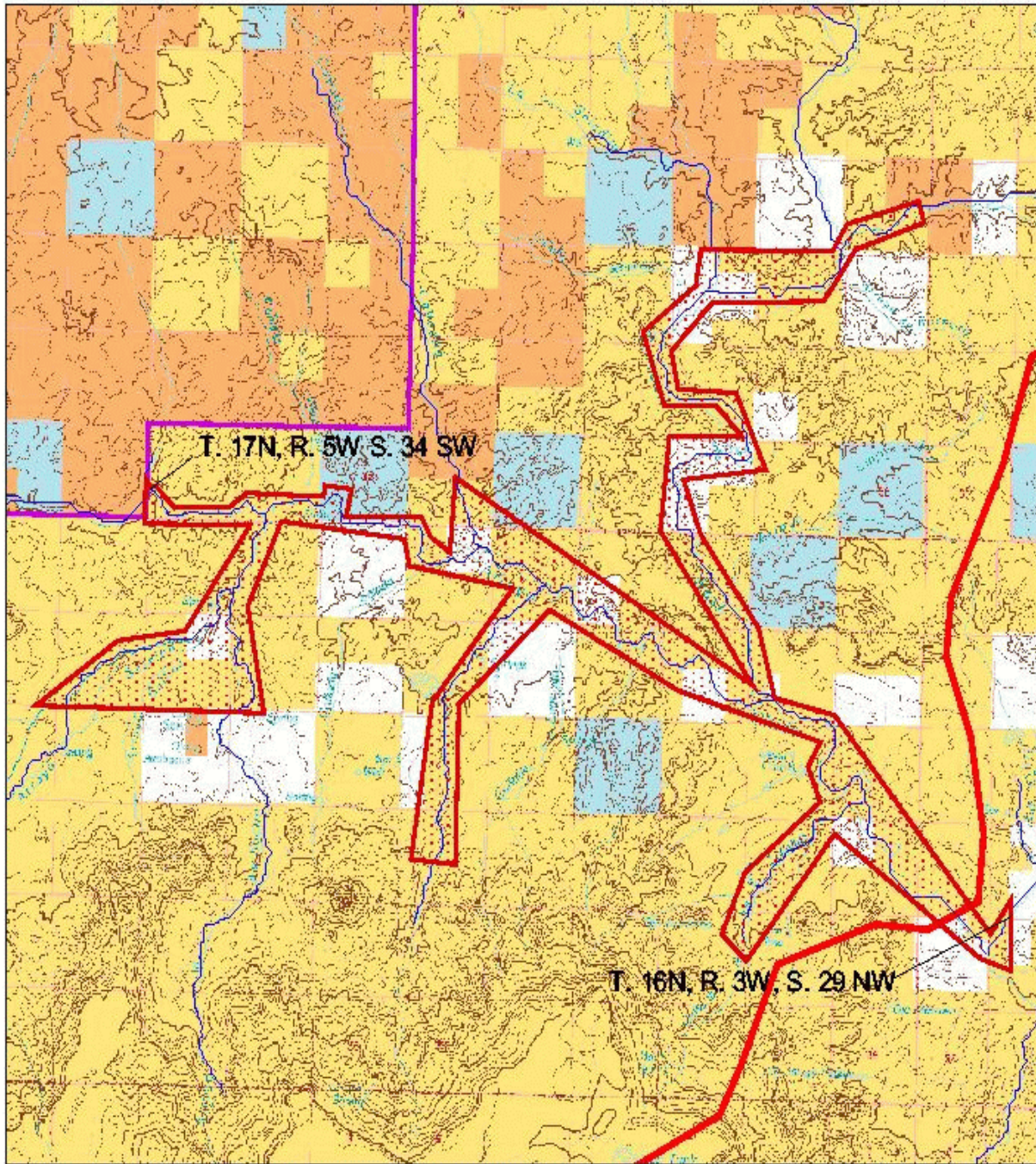
The remainder of the noxious weeds will use the best combination of IWM practices for the individual species. All populations found and/or treated will be monitored and re-vegetated as necessary to prevent re-invasion.

ALTERNATIVE A – NO ACTION

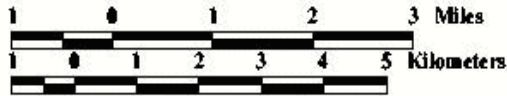
The Phase I aerial applications will not be conducted. The treatment of noxious weeds (including saltcedar) outside of the identified riparian areas will continue to be conducted under EA NM-010-99-038 Programmatic Noxious Weed Control for the AFO. Salt Cedar within the identified riparian areas will be treated by cut stump and other ground based methods as identified in the FIES/HMP for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (August 2000). This plan does not cover the treatment of noxious weeds within the FIES/HMP area (other than saltcedar) nor does it include saltcedar treatments on the entire watershed.

ALTERNATIVE B --PROPOSED ACTION

The watershed is quite large and diverse, and as such will be treated in Phases due to budgetary and personnel constraints. The **Phase I treatment** will involve the aerial (helicopter) application of herbicide to the majority of saltcedar plants along the Chico Arroyo main stem from the Rio Puerco confluence upstream to Charlotte's Well and segments of major tributaries such as the Torreon Wash, and Piedre Lumbre as time and money permit. Isolated patches which are adjacent to the main stem will also be treated as time and money permit.



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LOCATION MAP



Project Area

Produced by the Bureau of Land Management



Map projection: March 5, 2002



Map 2-1

No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM.

Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.



The salt cedar will be treated with a foliar spray of herbicide applied by helicopter and ground based equipment. The planned herbicide is a tank mix of .5% v/v Arsenal (imazapyr) and Roundup (glyphosate) plus .25% surfactant. However, any labeled solution, such as straight 1% Arsenal, may be used as determined at the time of treatment.

Garlon 4 (trichlopyr) will also be used as a basal bark or cut stump treatment but will only be used in small areas such as springs or other sensitive areas. This is because basal stem treatments are very labor intensive and as such cannot be effectively applied over a large area.

There are approximately 380 acres of stream channel within the Phase I Treatment area. The Salt Cedar plants are generally arranged in a single row along each side of the channel, and in broader patches across point bars

The Phase I treatment will utilize a commercial helicopter spray rig . A helicopter is necessary due to the incised and meandering channel, and the discontinuous nature of the saltcedar stands. The helicopter will be able to spot treat patches and limit overspray and non-target species damage.

Additional applications will be made primarily by backpack, pickup truck, and ATV mounted spray equipment. These applications will be made on patches with sensitive riparian plant communities, open water, or other issues necessitating a more precise application to the target plants. Maintenance treatments will also generally be restricted to the use of ground spray equipment. The exception to this rule will be large monotypic stands of saltcedar which were inadvertently missed in the initial treatment. Other noxious weed populations will be treated in this way and by other Integrated Weed Management techniques. Specific techniques will be chosen depending on the species, and the specific situation of the weed patch. Aerial re-treatment may be used if a large patch was missed or otherwise had low success, and the area would be impractical to treat by other means.

Pre-treatment removal of the above ground plant parts by manual and mechanical means, or by burning may be used in limited areas such as dirt tanks. These pre-treatments will have a cultural survey and clearance completed prior to commencement of surface disturbance.

Springs, Earthen dams and pit tanks which have become infested will also be treated. It is estimated that no more than 150 acres of these tanks will need to be treated.

The treatments will occur sometime between the middle of July and the beginning of the dormant season in September or October. Applicators will be, or be supervised by, certified pesticide applicators and herbicide use will be in accordance with H-9011-1 and the current label.

The dead salt cedar plants will be left in place for a minimum of two growing season following treatment to avoid stimulating root re-sprouting. Once the plants turn grey they are dead and may be bulldozed, burned, mowed, or left in place. Re-treatments into the indefinite future may be necessary on plants which were missed during the initial spraying or were otherwise not killed during the initial spraying. Re-treatments will be conducted without further NEPA analysis until a 100% kill is achieved.

Past experience in the Upper Rio Puerco has shown that the riparian areas normally re-vegetate naturally within 2 years following treatment. If natural re-vegetation fails then active re-vegetation of the treatment areas may be necessary following treatment. These re-vegetation activities may include planting of cottonwood (or other species) poles or root stock, and planting seed or species appropriate to the area. Pole planting will involve the use of powered augers to drill holes in the ground to ground water. Poles will then be placed and the holes filled in manually. Seeding may be done by a variety of means such as hydroseeding, broadcast seeding, or hand seeding. Drill seeding generally cannot be used due the inaccessibility of the stream channels. ATV drawn disc or drag harrows may be used to prepare seedbeds and to cover up seed. Re-vegetation practices requiring surface disturbance will be surveyed and cleared for cultural resources prior to beginning work. If cultural sites are found they will be protected from the effects of surface disturbing activities. Areas within WSA's will only be re-vegetated with native plant species, and generally only using manual methods.

Noxious weeds other than Salt Cedar will be treated according to principles of Integrated Weed Management found in the Vegetation Treatment EIS and H-9011-1, and as such all herbicides currently approved by BLM. may be used for their treatment. Any treatment methods or re-vegetation practices requiring surface disturbance will be surveyed and cleared for cultural resources prior to beginning work. If cultural or paleontological sites are found they will be protected from the effects of surface disturbing activities.

The use of Prescribed fire, or mechanical removal may be used to dispose of the dead woody debris following the Herbicide Treatment. A cultural survey and clearance of the treatment area must be conducted prior to the use of manual methods, mechanical methods, or the use of prescribed fire. If cultural or paleontological sites are found they will be protected from the effects of the fire or other surface disturbance.

The use of herbicides is a non-surface disturbing activity, and as such the initial aerial treatment will not require a cultural or paleontological survey of the treatment area.

The Phase II treatment will involve the detailed treatment of all saltcedar and other noxious weeds in the outlying tributaries and isolated patches throughout the watershed. It will also involve any necessary maintenance re-treatments in the Phase I treatment area. Treatment methods will be the same as those identified in the Phase I treatment description above.

The Phase III treatment will involve the recruitment of other, willing, land owners within the watershed to treat saltcedar and other noxious weeds on their property. It is anticipated that this phase will only come following the successful completion of at least the phase I and probably the phase II treatments. This Phase is included in this EA primarily because of the anticipated use of Federal funds to treat these non-Federally owned properties. Treatment methods will be the same as those identified in the Phase I description above.

Treatments may be extended to include other property owners in the area, but only with their written and willing consent.

Stipulations

1. Herbicide application will conform to procedures found in BLM Handbook H-9011-1, and the Herbicide Label.
2. An approved Pesticide Use Proposal will be obtained prior to herbicide use.
2. All trash and unused materials will be removed and properly disposed of upon completion of the project.
3. Off road driving will be kept to a minimum and limited to dry ground, dry weather conditions. No off road driving will take place in the WSA's
4. A cultural survey, and within the Torreon Fossil ACEC, a paleontological survey and clearance of treatment areas must be conducted prior to the use of manual methods, mechanical methods, or the use of prescribed fire. If cultural or paleontological sites (within the Torreon Fossil ACEC) are found they will be protected from the effects of the fire or other surface disturbance.
5. Herbicides will not be aerially applied over open water or on areas where sensitive riparian vegetation such as cottonwoods and willows are extensively intermingled with the saltcedar.
6. Treatments and re-vegetation practices in WSA's will conform to WSA-IMP approved practices and use the minimum tool concept in their implementation. This will only apply to treatments other than the helicopter treatments which are considered to be the minimum tool and the least disturbing treatment method for the Phase I - III treatments.
7. In accordance with Section 124 of PL 104-208 - Omnibus Consolidated Appropriations Act of 1997 - which provides a framework by which the Bureau of Land Management (BLM) may fund work on private land which has direct benefit to biotic resources on public land. Treatments may be extended to include other property owners in the area, but only with their written and willing consent. For those areas not currently under special grazing management, or exclusion from livestock, an approved grazing management plan or cooperative agreement must be negotiated and in place prior to conducting any treatments under this EA.

SECTION 3

DESCRIPTION OF THE AFFECTED ENVIRONMENT

VEGETATION

Major topographic features of the treatment area and associated vegetation are listed below.

Topography	Description	Elevation Range	Major Plant Species
Mesa sideslopes	Steep, small open grassland benches	7,700-6,400	ponderosa pine piñon pine blue grama Western wheatgrass
Lower-elevation mesa tops	Piñon-juniper stands intermixed with grassland-shrub benches, and Ponderosa Pine forest stringers and isolated populations	6,400-5,900	piñon pine oneseed juniper blue grama Western wheatgrass
Bottomlands	Rolling foothills, wide alluvial filled valleys and canyons, generally with deep arroyos	≤ 5,900	alkalai sacaton blue grama galleta squirreltail broom snakeweed rubber rabbitbrush greasewood fourwing saltbush shadscale
Riparian areas	Assessed and non-assessed areas along perennially, intermittently, and ephemeral flowing streams, standing waters, and springs.	≤ 5,900	sedges rushes cattail saltcedar willow cottonwood

While the Chico watershed extends to elevations over 11,000 ft, the actual treatment area will only extend to the lower mesa tops at approximately 7,500 ft.. Therefore the description of the affected environment will not include the higher elevation areas.

RANGELAND MANAGEMENT

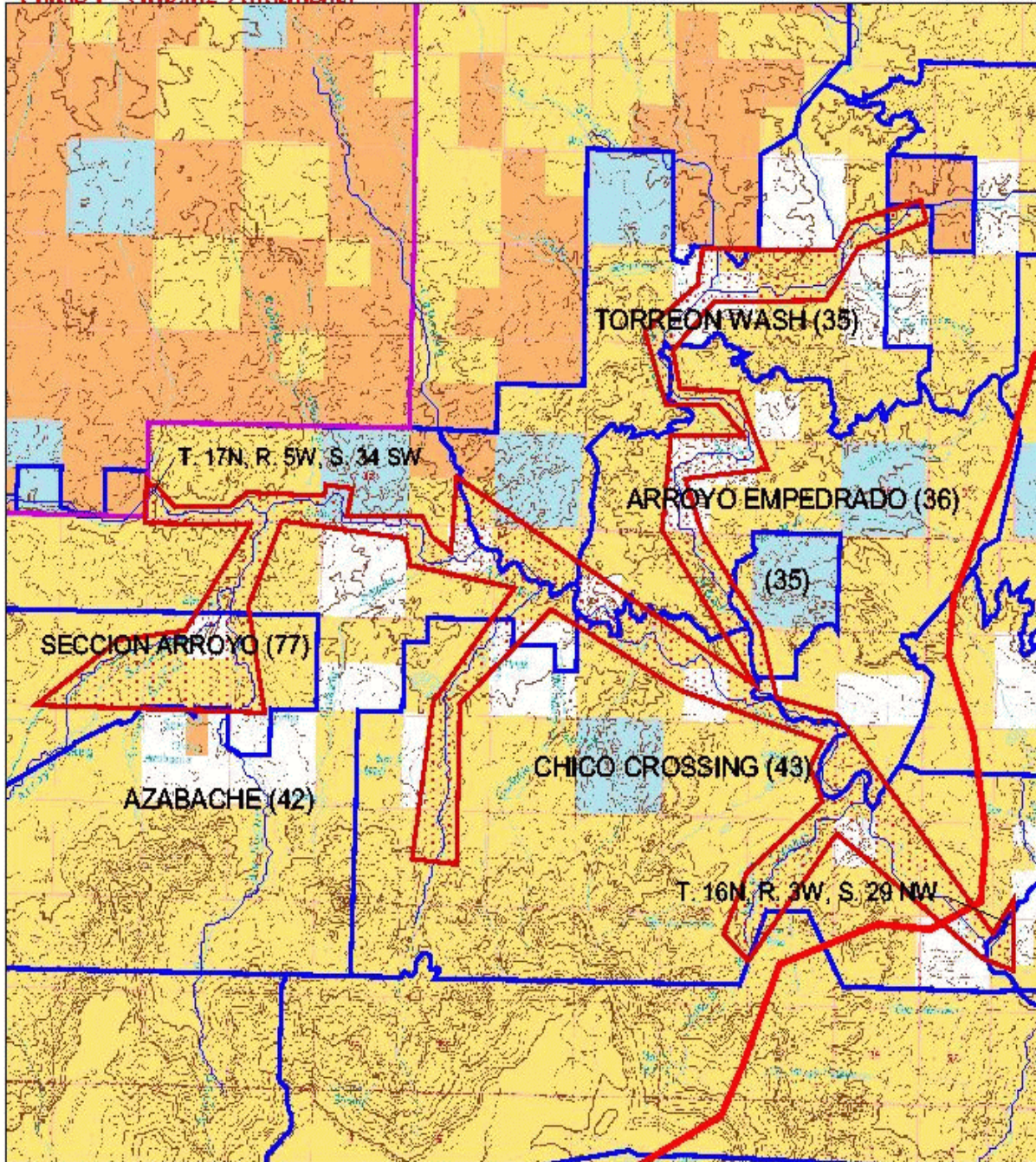
The area has been grazed by a combination of sheep and cattle since the early 1800s. The Phase I Treatment area overlaps 5 allotments (See Map 3-1), including: Torreon Wash, Chico Crossing, Azabache, Seccion Arroyo, and Arroyo Empedrado.

SOIL & WATERSHED RESOURCES

The Chico Arroyo is part of Stream Reach Number 2105 as designated by the New Mexico Water Quality Control Commission. It's designated uses include irrigation, limited warm water fishery, livestock watering, wildlife habitat, and secondary contact. Secondary contact such as swimming or wading is probably a rare recreational event in the Chico Watershed.

**Chico Watershed Saltcedar Treatment
Phase I - Grazing Allotments**

New Mexico



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LOCATION MAP



Treatment Area

Produced by the Bureau of Land Management



Map prepared on April 24, 2002



Map 3-1

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Statewide Land Status Legend

Bureau of Land Management	Tribal Lands
Bureau of Reclamation	National Park Service
Dept. of Agriculture	Private
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Dept. of Energy	State Game & Fish
Forest Service	State Park
Fish & Wildlife Service	

With the exception of a flowing well and several springs in the channel, both the Chico Arroyo and the Rio Puerco in this watershed are ephemeral to semi-ephemeral streams (refer to the Glossary), flowing in response to spring snowmelt and summer storms. No known diversions exist for irrigation below this area, the ephemeral nature of the stream precludes any fishery, and both livestock and wildlife make extensive use of the stream and adjacent corridor.

Water quality assessments by the State of New Mexico have identified the Rio Puerco and its tributaries as not fully supporting designated uses, because of stream bottom deposits or sediment. The activities or agents suspected as sources of the sediment include grazing, streambank modification, loss of riparian vegetation, and road maintenance. However, the state did not include the non-perennial reaches of the Rio Puerco or its tributaries (such as those in this watershed) in the assessments because sufficient data were not available.

The entire Chico Arroyo watershed is estimated to contribute approx. 870,000 tons of sediment per year, or 625 tons per square mile.

Soils in the watershed are pre-dominantly sedimentary sandstone and clay entisols and aridosols.

The treatment areas within the watershed are composed of 4 general soil associations identified in the Cabezon Soil Survey (1968). These include:

Little-Las Lucas association: on rolling or hilly, eroded soils on uplands and low shale hills.

Penistaja - Berent - Sandstone outcrop association: on nearly level to rolling ground; slightly to moderately eroded soils on uplands and ridges.

Basalt outcrop - Cabezon - Torreon association: gently sloping soils and steep to very steep, stony soils on Mesa Chivato.

Travessilla - Persayo association: strongly sloping to steep, eroded soils on mesas and breaks. This association also includes Alluvial land and Alkali Alluvial land soils in valley bottoms.

These soils are developing in three general situations: alluvial valleys, low-elevation mesa tops, and mesa sideslopes. The alluvial valleys and mesa tops have grass or grass-shrub communities with occasional juniper trees, while the mesa sideslopes have woodland vegetative communities. Generally the grass and grass-shrub communities have deep or moderately deep soils with moderate to fine textures. Soils of the woodland communities are moderately deep to shallow, fine to coarse textured, and often have significant amounts of coarse fragments in the profile. Rock outcrops and cliffs are major components of the mesa sideslopes.

The majority of the treatments will occur on deeply gullied alluvial valley bottoms in the Travessilla - Persayo soil association. Treatments occurring on other soil associations will generally involve dirt dams, springs, and isolated saltcedar patches in 4th to 8th order tributary channels.

Groundwater in the area generally varies in depth from 200 - >500 ft. with most being in excess of 500 ft. deep. The watershed lies partly in the Mt. Taylor uranium mining area. This has lead to some groundwater contamination by radionuclides, other groundwater contaminants include dissolved solids, heavy metals, alkali, and high ph. The Chico Arroyo was used from the 1950's to the 1990's as a wastewater disposal area for several of the uranium mines in the San Mateo area, and as such the near surface alluvial groundwater table along the stream channel likely contains elevated levels of radionuclides.

Pesticide DRASTIC index rating for the Alluvial Basins groundwater region 2J - score 155 (low-moderate concern); Pesticide RAVE rating - score 54 (low-moderate concern). Considering the non-persistence of the herbicides used, the depth to groundwater, and very little open water in the treatment area, the likelihood of groundwater or other water contamination from this action is nearly non-existent.

No farming or other cultivation practices are being conducted immediately downstream of the treatment area.

MICROBIOTIC SOIL CRUSTS

Western deserts typically consist of many bare, open spaces and a few scattered plants. A closer look reveals that the

open spaces often contain a highly complex community of unrelated organisms such as cyanobacteria (refer to the Glossary), green algae, lichens, mosses and microfungi. This community is known as the "microbiotic soil crust," and it is usually only a few centimeters thick. Crusts are biologically active under cool and moist conditions, becoming dormant when soil surfaces are hot and dry. They are important in stabilizing soils against wind and water erosion, and in making nutrients such as carbon and nitrogen available for vascular (sap-bearing) plants.

Only recently has there been sufficient information on these crusts in the Colorado Plateau, Great Basin, Sonoran and Mohave deserts to use in land management decisions. Other than one study of lichens on rock surfaces in the El Malpais National Conservation Area, no studies of microbiotic soil crusts within the boundaries of the Albuquerque Field Office exist. Based on guidelines developed in other deserts, lichens and cyanobacteria should dominate local crusts. Mosses should be scattered and in protected sites such as under bushes. Cold deserts such as the San Juan Basin have a much higher potential vascular plant cover than warm deserts.

Generally as plant cover increases, microbiotic soil crust communities also increase. This is especially true for the mosses, because they have increased protection and food sources. If cover becomes too dense, the crust is shaded and groups like cyanobacteria stop photosynthesizing. If range condition deteriorates, increasingly less cover and food sources are available, so some members of the microbiological soil crust should decrease correspondingly in species and abundance. They are also more exposed to longer periods of aridity, and fluctuations in soil moisture become more extreme and rapid. The consequences could range from the elimination of some or all microbiotic species to dominance by a few, which may not be the most desirable. Soil disturbing projects tend to disrupt microbiotic communities, and recovery times seem to be much longer than for vascular plants on the same site. The cyanobacteria generally recover much faster than mosses and most lichens.

RIPARIAN RESOURCES

Riparian-wetland areas (hereafter referred to as "riparian areas") are the "green zones" that transition between areas of open water and upland vegetation. They are the ecological link between the aquatic and upland environments. These areas are related to and dependent on their adjacent waterways, such as Arroyo Chico, because the presence of water for all or part of the growing season determines their extent and vigor. (Refer to the Glossary for a discussion of riparian-wetland areas and the various types of water regimes.)

In a healthy riparian ecosystem, the four primary elements (soils, hydrology, vegetation and landform/geology) are in balance and mutually supporting one another. While all four components are important, soil and water are the fundamental elements that define riparian areas, while vegetation reflects the nature and condition of the soil and moisture conditions. From a management perspective, vegetation is critical, because it is often this element over which the land manager has the most control. It is usually the easiest to manipulate, and generally responds most quickly to human influence, use and actions.

The health of a riparian area is judged by its function, capabilities and relative potential, with the objective of maintaining or achieving a long-term, properly functioning condition.

The properly functioning condition of riparian areas is demonstrated when adequate vegetation, stream bends (sinuosity), and in some cases, large woody debris are present to serve the following functions:

Develop root masses that stabilize streambanks.

Filter sediment, capture bedload (upstream sediment), and aid in floodplain/stream channel development.

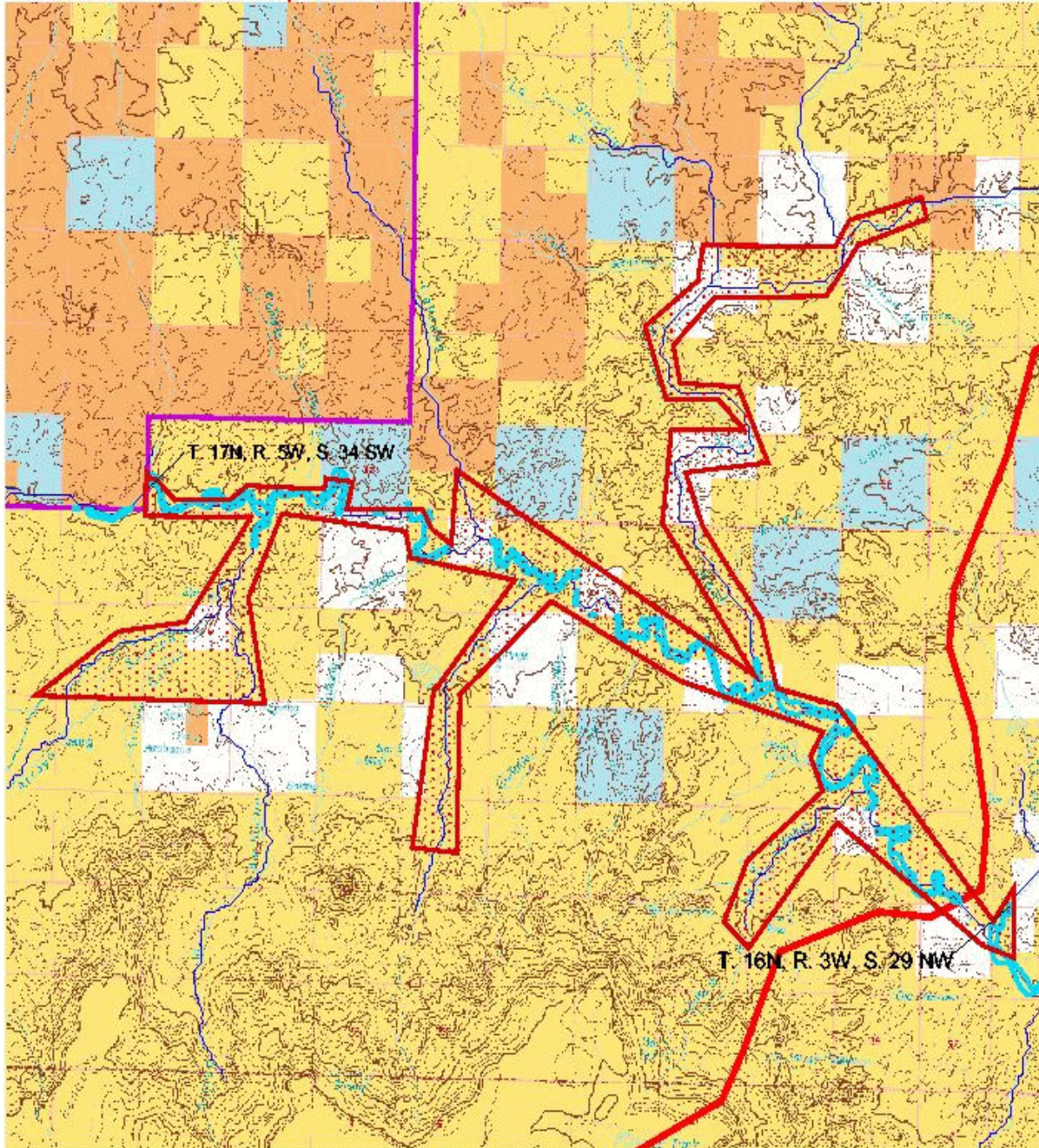
Improve floodwater retention and groundwater recharge.

Develop ponding/channel characteristics that can provide the water depth, duration, temperature and habitat necessary for aquatic and non-aquatic animal species.

The BLM assessed riparian areas (Phase I treatment area) within the main drainage channel of the Chico Arroyo currently supports riparian habitat totaling approximately 380 acres or .04% of the total watershed, or approximately 17% of the assessed riparian area (2226 acres) within the Resource Area.

**Chico Watershed Saltcedar Treatment
Phase I - Assessed Riparian Areas**

New Mexico



1:108240



LOCATION MAP



Treatment Area

Riparian Areas

Produced by the Bureau of Land Management



Map prepared on April 24, 2002



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Map 3-2

The length of the Chico Arroyo which flows through the Phase I treatment area is approx. 14.6 miles. The streambed elevations range from 6,200 ft.(west) to 6,040 ft. (east). This represents an average channel grade of .5 ft per 100 ft.

The majority of the Chico Arroyo, and its principal tributaries, the Torreon Wash and the Piedre Lumbre Arroyo are, during years of average precipitation, ephemeral to semi-ephemeral. This means the stream channel carries intermittent water flows that are interrupted for a period of weeks to months, depending upon annual precipitation patterns. Summer thunderstorms within the greater 874,132 acre Chico watershed provide the majority of the precipitation, with the resultant flows often approaching flash floods. This water regime can support and maintain riparian vegetation, but only within limited areas. The only area of perennial water flows originate from the old uranium test well know as “Charlotte’s Well”. This stretch of perennial flow extends approximately 2.6 miles downstream from Charlotte’s Well.

The vegetation along the Chico Arroyo is almost exclusively upland shrubs and grass species such as rabbitbrush and sacaton, except in those areas near surfacing groundwater sources or coves that receive surface runoff when the main channel flows sporadically. Here, sedges, willows and cottonwoods grow. Most of the riparian habitat within the watershed is lotic (involving flowing water), occurring along the banks of Arroyo Chico. Although most of this habitat is occupied primarily by tamarisk (saltcedar), limited areas of sedge, rush, willow and cottonwood are present.

The condition and relative health of the semiephemeral reach from the confluence of the Rio Puerco to the perennial reach below Charlotte’s Well was first assessed in 1993, and found to be in nonfunctional condition. A reassessment in 1998 concluded that conditions had not improved due to the combination of a semiephemeral water regime and livestock use during the growing season.

In 1987, the BLM planted cottonwood poles about 2 miles upstream from the confluence of the Chico Arroyo with the Rio Puerco (in the southeast corner of the south half of T. 16 N., R. 4 W.). Today, stems 4 to 6 inches in diameter and 20 to 30 feet tall grow. As with many areas along the Chico Arroyo, this one receives additional water from a northfacing cove that directs overland flows into the site. It produces a large quantity of viable cottonwood seeds, and a number of volunteer cottonwoods have established themselves along the channel downstream from the planting site.

Within the pole planting area, several feet of aggraded (built up) channel indicates active sediment deposition in the Chico Arroyo. This is due primarily to the slowing of fast moving water as the result of improved stream meanders (sinuosity) with lateral bank erosion which produces beneficial point bars (refer to the Glossary) in the stream channel. It is anticipated that long term improvement of watershed conditions within the greater Chico Arroyo basin would reduce the movement of excessive amounts of sediment within the channel.

WILDLIFE

General

The Chico Watershed contains a wide variety of habitat types that support diverse populations of wildlife, including over 30 species of mammals, more than 60 species of birds (including migrants), and several species of reptiles, amphibians and invertebrates. A list of vertebrate species likely to occur within the area is found in the Upper Rio Puerco Habitat Management Plan (1981).

Habitat types in the watershed are dispersed vertically and horizontally over the landscape in a patchwork pattern that provides large amounts of “edge” where one habitat type blends into another. These “edge” areas add to habitat complexity and increase species diversity. Water availability for wildlife is limited throughout the watershed, making all waters of special concern.

Game Animals

The BLM supports NMDG&F management plans for those species that state law defines as of economic value (game animals). Game species of interest in the watershed include mule deer, elk, black bear, cougar, turkey, scaled quail and mourning dove. Portions of this watershed lie within the area of critical winter habitat for the Mount Taylor deer and elk herds. Deer and elk surveys conducted during the winter by the NMDG&F for the north rim of Mesa Chivato show that an average of approximately 50 elk and 10 deer use the area. The greater Mt. Taylor area is estimated to

contain 3,000 4,000 elk and just a few hundred deer. Most hunters use the watershed during deer and elk seasons. Turkeys also occasionally move down into the Chico Arroyo valley for portions of the winter months. Although the watershed is unsurveyed, it is unlikely that more than a few turkeys use it during any given winter.

Mourning doves and scaled quail are the most common upland gamebird species on the watershed, with both most commonly found along drainages containing fourwing saltbush. These species occur at low densities and do not attract much hunter interest.

Waterfowl use of the area is severely limited by the ephemeral to semi-ephemeral nature of the wetland and riparian areas. These birds make transient use of some of the dirt tanks when they contain water, and isolated wetlands such as Charlotte’s Well, and Azabache Flowing Well.

Other vertebrate species of high federal, state, or public interest include special status species (refer to the section on Threatened and Endangered Species below), amphibians, rodents, reptiles, raptors and neotropical migratory birds.

Reptiles and Amphibians

The watershed provides suitable habitat for the majority of the 38 species of reptiles and amphibians known or likely to occur in the upper Rio Puerco watershed (including the Chico watershed). Little knowledge exists concerning most of these species. The reptiles generally prefer dense brush or rocky areas. The amphibians require wetland sites for at least part of their life cycle, so springs, artesian wells, and other wetland areas are important. The amphibian species known in the area include the red spotted toad, Western spadefoot toad, Woodhouse’s toad, and tiger salamander. Amphibians are of special concern because of their apparent global decline.

Raptors

The watershed contains an abundance of raptor habitat, ranging from grassland valley bottoms to rimrock to woodlands to high elevation conifer forests. The most common species in the area include the sharpshinned hawk, Cooper’s hawk, red-tailed hawk, marsh hawk and golden eagle. Ravens and jays are also common on the watershed. All of these species’ populations appear to be stable.

Small Mammals

The watershed provides habitat for the majority of the area’s 66 species of mammals. Rabbit species include the cottontail and black tailed jackrabbit. Common rodents in the area include the Colorado chipmunk, least chipmunk, Gunnison’s prairie dog, white tailed antelope ground squirrel, rock squirrel, silky pocket mouse, Western harvest mouse, deer mouse, brush mouse, piñon mouse, rock mouse, white footed deer mouse, Northern grasshopper mouse, white throated woodrat and porcupine. These species occupy a wide variety of habitat types on the watershed. Carnivores include the long tailed weasel, badger, bobcat, mountain lion, black bear, coyote, striped skunk and gray fox. No evidence has been found that these animals are suffering population declines anywhere in the Rio Puerco watershed.

Neotropical Migratory Birds and Other Nongame Birds

Neotropical and other nongame birds comprise the bulk of the 177 species of birds potentially occurring in the Rio Puerco watershed. These birds are coming under increasing scrutiny and concern because of their general decline throughout the country. New Mexico Partners in Flight has ranked those birds occurring in New Mexico by priority of concern. Priority birds potentially occurring in the area are listed below. While most of these birds are not under any special management, the BLM must manage the watershed to enhance their protection.

Habitat	Species
Riparian	MacGillivray’s warbler SW willow flycatcher

Grassland	mountain plover Western burrowing owl long billed curlew ferruginous hawk
Shrubland	Cassin's sparrow loggerhead shrike Scott's oriole
Piñon-juniper	gray vireo black-throated gray warbler solitary vireo gray flycatcher
Ponderosa pine	whip-poor-will Virginia's warbler Grace's warbler

THREATENED, ENDANGERED & OTHER SPECIAL-STATUS SPECIES

General

Special status species that are known to occur within the area include: bald eagle (accidental migrant), and mountain plover. The area is outside of the bald eagle's normal range, which is along the Rio Grande corridor, however, they have been observed migrating over the area.

Federally listed and proposed species that have the potential to occur within the area but have not been specifically identified include the American and Arctic peregrine falcons, mountain plover, Western burrowing owl, loggerhead shrike and ferruginous hawk. The falcons could pass through the area during spring and fall migrations. The mountain plover is found throughout northern New Mexico in shortgrass prairies and could occur within the general area. The Western burrowing owl, loggerhead shrike and ferruginous hawk occur throughout the area wherever their particular habitat sites (e.g., prairie dog towns, open piñon-juniper savannas) occur.

The following serves only as an example of the general vegetative/habitat communities within the treatment areas and the potential listed, proposed and species of concern (BLM sensitive) that could occupy these communities within the area. Many of the more mobile species (birds, bats) can use several different communities throughout the year.

Species in the shrub-grassland community include the bald eagle, Western burrowing owl, ferruginous hawk and loggerhead shrike. None of the threatened or endangered, proposed or other BLM sensitive species appear to be limited or especially dependent upon the piñon-juniper woodland community.

In addition, numerous unique, special-feature, habitats exist within the area (e.g., springs, caves, cliffs). These habitats are generally confined to small areas and scattered throughout the two broad vegetative communities. Several species are "obligate" to these specific features, such as caves or cracks in cliffs; that is, they cannot survive except where the features exist. These species include bats (occult little brown, spotted, big free-tailed, Yuma myotis, fringed myotis, long-legged myotis, long-eared myotis and small-footed myotis). Medium-sized cliffs (50 to 75 feet in height) occur within and adjacent to the watershed, and could provide habitat for nesting raptors, ravens and cliff swallows.

A complete Biological Evaluation for all currently listed species was completed for the Riparian EIS/HMP and is on file at the BLM Albuquerque Field Office. The BLM has determined that implementation of salt cedar and noxious weed treatment programs in these areas would result in a "No Affect" or "May Affect--Not Likely to Adversely Affect" situation for all listed, proposed, or candidate plant and animal species.

With improvements in the vegetative and hydrologic conditions in the riparian areas in the Chico watershed there is the long term potential to develop habitat suitable for the Southwestern Willow Flycatcher. Currently, no suitable habitat for this species occurs within the watershed.

The Mountain Plover uses grassland as its habitat and may occur within the Chico watershed, however it does not use the salt cedar infested riparian areas in the watershed.

Sandoval County

Eight federally listed threatened and endangered, one proposed, and 24 species of concern (BLM sensitive) are known or potentially could occur on public lands within Sandoval County (USDI, FWS 1998). However, because of the land ownership patterns and habitats used, these species may occur with the borders of the county but not within the Chico Watershed.

McKinley County

Six federally listed threatened and endangered, one proposed threatened, thirty species of concern (BLM sensitive), and fifteen state of New Mexico Threatened and Endangered species are known or potentially could occur on public lands within McKinley County (USDI, FWS 2000, NMDG&F 1998, Sivinski and Lightfoot 1995). However, because of the land ownership patterns and the specific habitats used by these species, they may occur with the broad borders of McKinley County but not occur within the allotment

Cibola County

Seven federally listed threatened and endangered, one proposed endangered, two federal candidate, eighteen BLM sensitive, and twelve State listed species are known or potentially could occur on public lands within Cibola County. Many of the species identified for Cibola County as a whole, are unlikely to occur within the Chico Watershed area, due to the lack of specific habitat requirements. For example, the Zuni bluehead sucker is listed as occurring within Cibola County, however the Chico Watershed provides no habitat (e.g., lakes, rivers) that could support this species.

WILDERNESS

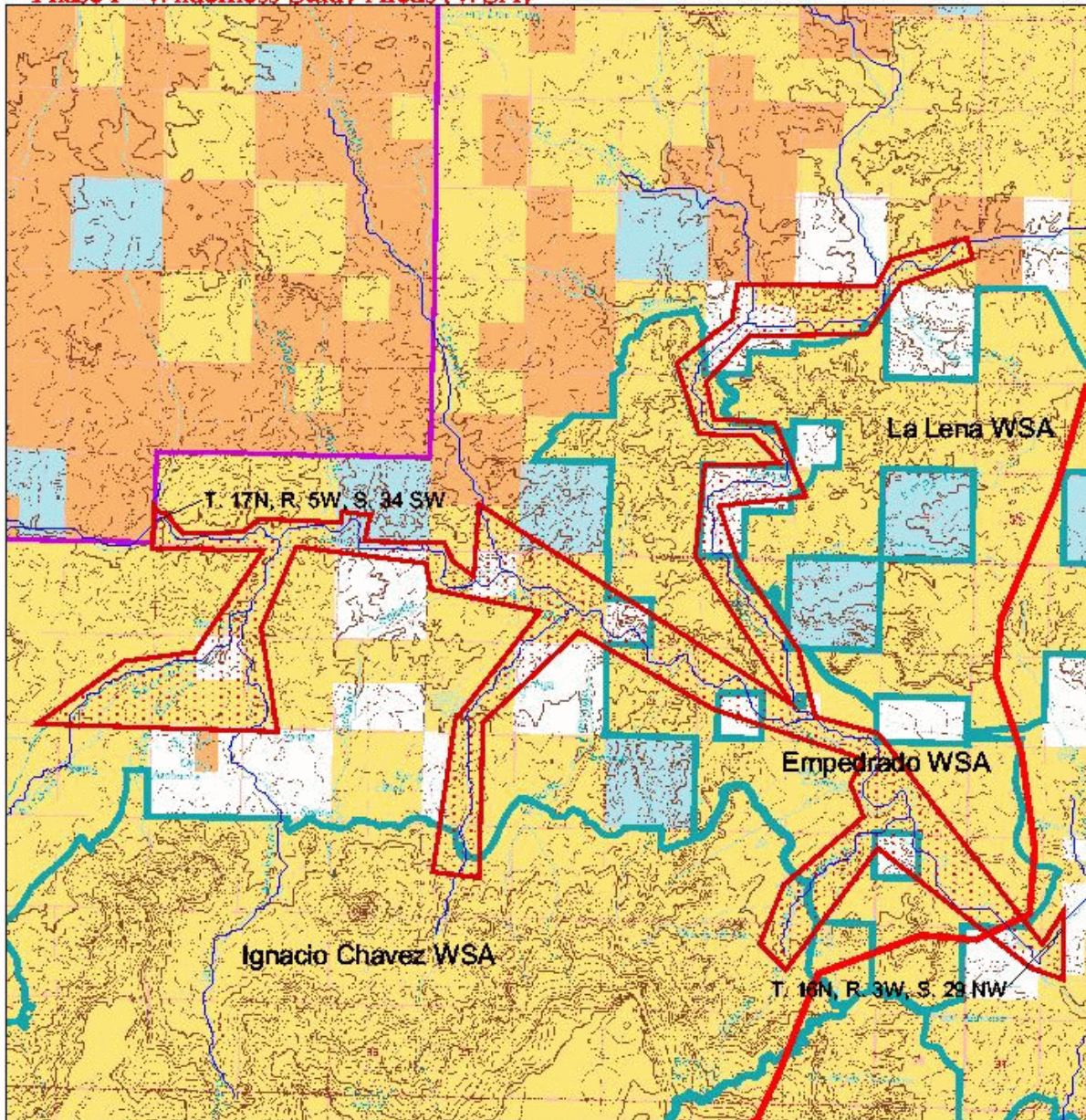
Three Wilderness Study Areas (WSAs) overlap the Chico Watershed. [A WSA is a roadless area that has been inventoried through the wilderness review process and found to have wilderness characteristics as described in Section 603 of FLPMA and Section 2(c) of the Wilderness Act of 1964.] The Chico Watershed contains approximately 32,973 acres of the Ignacio Chavez WSA ; approximately 9011 acres of the Empedrado WSA; and approximately 7,379 acres of the La Lena WSA. These 49,363 WSA acres contain mandatory wilderness characteristics such as naturalness, opportunities for solitude, or opportunities for primitive and unconfined recreation. WSAs, cover approximately 5.6% of the public land in the watershed.

A Wilderness Analysis Report for each of these areas was included in the New Mexico Statewide Wilderness Study (USDI, BLM 1988). Each report provides a WSA-specific analysis of wilderness management and potential conflicts with existing and potential uses.

All areas studied for wilderness suitability are managed under the BLM's Interim Management Policy for Land Under Wilderness Review. These will continue to be managed as WSAs until the Congress either designates them as wilderness or releases them from the wilderness review process through legislation. Only the Congress can designate an area as wilderness or release it from further review.

**Chico Watershed Saltcedar Treatment
Phase I - Wilderness Study Areas (WSA)**

New Mexico



1:108240



LOCATION MAP



Treatment Area



WSA Boundary

Produced by the Bureau of Land Management



Map prepared on April 24, 2002



Map 3-3

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VISUAL RESOURCE MANAGEMENT

The BLM has established a system for evaluating visual resources and uses four VRM classes to provide management direction for these resources on public land. A VRM class identifies, through objectives, the suggested degrees of human modification that should be allowed. Based on evaluations and BLM management objectives, either Class I or II is assigned to lands with the most valued visual resources, Class III to those with moderately valued visual resources, and Class IV to those with the least valued visual resources. VRM Class I is generally assigned to lands in which a management decision has been made to maintain a natural appearing landscape, including national wilderness areas, the wild component of the National Wild and Scenic River System, and other congressionally and administratively designated areas. Classes II, III, and IV are assigned based on combinations of scenic quality classes, sensitivity levels, and distance zones.

The Chico Arroyo Watershed is located within areas that have been assigned Visual Resource Management (VRM) Class II and III objectives through the Rio Puerco Resource Management Plan (RMP--1986). A majority of the land within the watershed, including that within existing WSAs, the Ignacio Chavez Special Management Area, and along the route for the Continental Divide National Scenic Trail, is being managed under VRM Class II objectives. A small portion of the watershed along the Chico Arroyo is managed under VRM Class III objectives. Public and non-Public lands outside of the special management areas are either not classified or managed under VRM Class III objectives.

The VRM objective for the Class II lands within the watershed is to retain the existing character of the landscape. The level of visible change to this landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes to the predominant natural features of the characteristic landscape found on these lands must repeat the basic elements of form, line, color, and texture found there.

The VRM objective for the Class III lands is partial retention of the existing landscape character. The level of visible change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements (form, line, color, and texture) found in the predominant natural features of the characteristic landscape.

RECREATION

Visitors participate in a variety of motorized and non-motorized recreational activities within the watershed. Visitor use is considered to be low (during most of the year) to seasonally moderate (during the fall for hunting and piñon-nut gathering).

Non-motorized activities in the watershed include mountain bike riding, birdwatching, camping, hiking and travel by horseback. These types of activities are generally dispersed throughout the watershed. According to the BLM's Recreation Opportunity Spectrum (ROS) classification system, the public lands in the Ignacio Chavez, La Lena, and Empedrado WSAs, which make up approximately 5.6% of the public land in the watershed, are classified as semi-primitive non-motorized.

Portions of the 1870s Wagon Road Trail and Continental Divide Trail Special Management Areas (SMAs) pass through the Chico Watershed. Management of these two SMAs places emphasis on providing opportunities for walking, hiking and horseback uses. Another corridor passing through the watershed is County Road (CR) 25, which is classified as roaded natural through the ROS. Here motor vehicle use (limited to the road) and vehicle based recreational activities and facilities such as hunting, picnicking and piñon nut gathering are permitted.

Off-highway vehicle use of public land within this watershed is classified as limited to existing roads. The majority of motorized recreation occurs along CRs 25 and 279, which pass through the watershed. In 1994 the BLM closed several routes within the IC Grant SMA (documented in the Environmental Assessment and Plan Amendment for Vehicle Use in the Ignacio Chavez Special Management Area).

AREAS of CRITICAL ENVIRONMENTAL CONCERN (ACEC) and SPECIAL MANAGEMENT AREAS (SMA)

The Chico Watershed contains all or part of 8 ACEC's and SMA's. These include:

Pelon Watershed SMA: Designated to protect a Rio Puerco hydrology study; contains 858 acres in the northern most part of the watershed; no restrictions on any actions planned in this EA.

Torrejon Fossil Fauna ACEC: Designated to protect fossils for scientific study; contains 2,981 acres in the northern most part of the watershed; no restrictions on any actions planned in this EA.

Canyon Jarido SMA: Designated to protect scenic qualities, recreational opportunities, archaeological resources, and wildlife habitat; contains 1,803 acres in northeastern part of the watershed; no restrictions on any actions planned in this EA.

Jones Canyon ACEC: Designated to protect archaeological resources; contains 640 acres in the northeastern part of the watershed; no restrictions on any actions planned in this EA.

Headcut Pre-historic Community SMA: Designated to protect archaeological resources; contains 2,274 acres in the east central part of the watershed; no restrictions on any actions planned in this EA.

San Luis Mesa ACEC: Designated to protect raptor nesting habitat and Rio Puerco hydrology study; contains 10,447 acres (part) in east central part of watershed; no restrictions on any actions planned in this EA.

Azabache Station SMA: Designated to protect historic stagecoach stop; contains 80 acres in the central part of the watershed; no restrictions on any actions planned in this EA

Ignacio Chavez SMA: Designated to protect recreational opportunities, scenic qualities, habitat protection, woodland products, and ponderosa pine regeneration: contains 43,182 acres (part) in southeastern part of the watershed; vehicular restrictions in WSA portion, no other restrictions on any actions planned in this EA.

The Phase I treatment area overlaps or abuts 3 SMA/ACEC's (Map 3-4). These areas are described above and include the Ignacio Chavez SMA, the San Luis Mesa Raptor ACEC, and the Azabache Station SMA.

CULTURAL RESOURCES

The Chico Arroyo Watershed is an area of major cultural resource significance in the San Juan Basin. The watershed has been inhabited by man beginning in paleo-indian times and continuing through the present. The more significant areas in the watershed are being protected as SMA's and ACEC's. These include: the Canyon Jarido SMA; the Jones Canyon Cultural ACEC; the Headcut Prehistoric Community ACEC; the Azabache Station SMA; and the 1870's Wagon Road Trail SMA. The watershed is also part of the old Navajo homeland "Dinetah", and contains areas of importance to the current Navajo populace in the area.

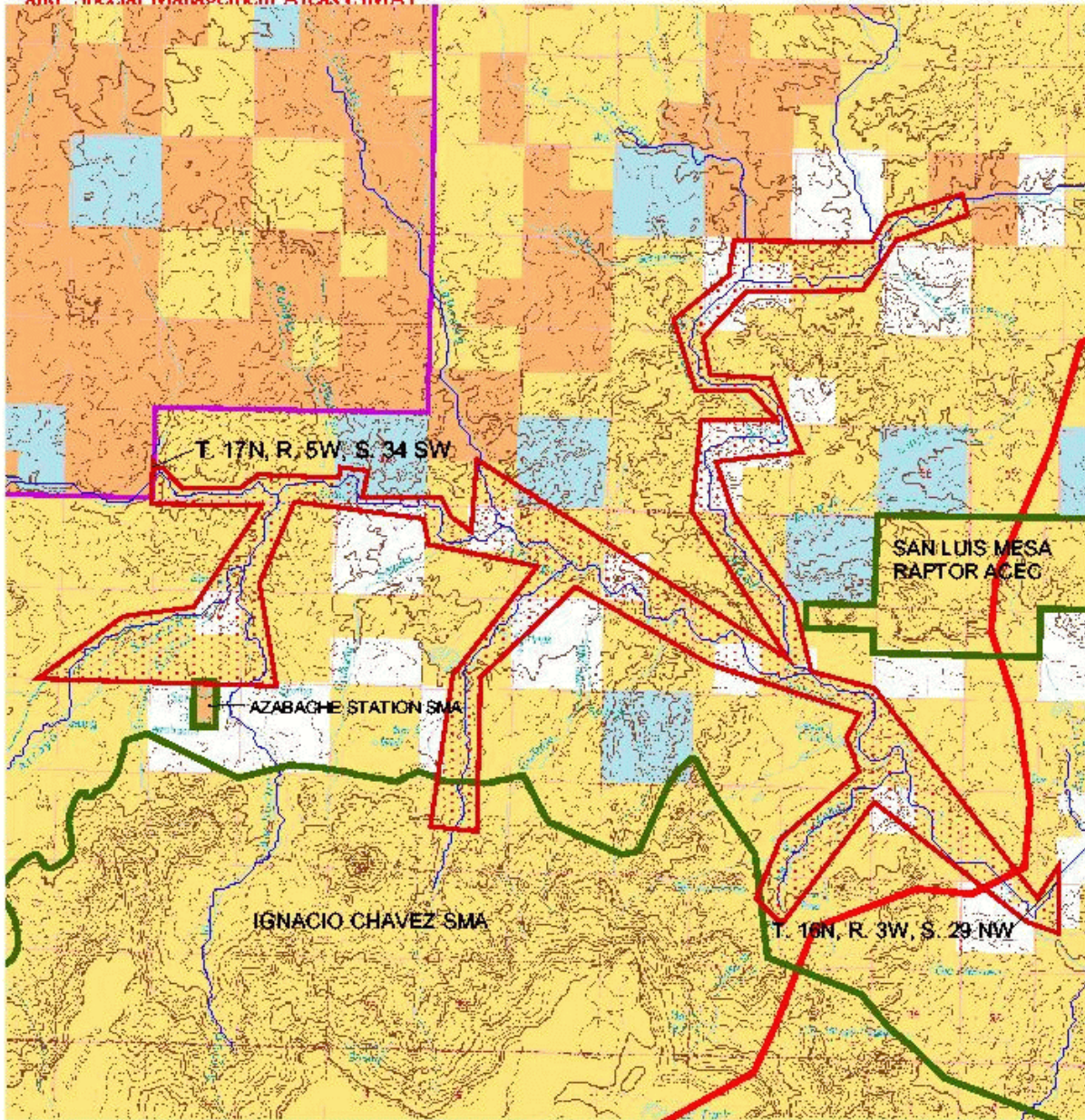
Cultural Resource inventories within the Phase I treatment area (Chico Arroyo mainstem) have identified a number of archeological sites. These sites include Navajo hogans, sweatlodges, stone shelters and indeterminate artifact scatters. No specific information is available concerning traditional cultural properties in the Phase I treatment area, but the occurrence of Navajo archeological remains implies that such properties could occur in the area.

PALEONTOLOGICAL RESOURCES

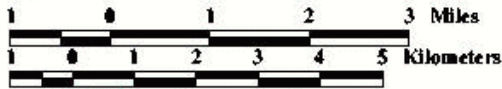
A variety of Paleontological resources exist in the Chico Arroyo Watershed. These contain both invertebrate and vertebrate fossils, fossilized vegetation, and trace fossils. A number of surveys have been conducted within the watershed area. These have resulted in the designation of the Torrejon Fossil ACEC at the head of Torrejon Wash in the northern portion of the watershed. Important Paleocene "type specimens" of the Torrejon Fauna were originally described in this area.

**Chico Watershed Saltcedar Treatment
Phase I - Areas of Critical Environmental Concern (ACEC)
and Special Management Areas (SMA)**

New Mexico



1:108240



LOCATION MAP



Produced by the Bureau of Land Management



Map produced on April 24, 2002



Treatment Area



ACEC/SMA Boundary

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Map 3-4

SECTION 4

ENVIRONMENTAL IMPACTS

ALTERNATIVE A – NO ACTION

Vegetation

Treatment of exotic and invasive plants will continue as identified under **Riparian Resources** below.

Areas outside of the AUFO's administrative area would not be treated or would need to have NEPA completed for each action. While this is technically possible, it would involve a (perhaps) prohibitive amount of time and effort. It could also bring into question the segmentation of NEPA analysis for the overall treatment area.

Exotic and invasive plants present within the watershed treatment areas would continue to exist for an extended time period and would likely expand their dominance. This would prevent the vegetation community from moving toward its natural potential. Therefore, a negative impact to vegetation would result from the adoption of this alternative.

Rangeland Management

All assessed riparian areas within the watershed are currently managed by the exclusion or special winter use only of livestock. Therefore, there would be no impacts to riparian grazing management under any alternatives in this EA.

Dirt stock tanks within public lands administered by the Albuquerque Field Office would continue to be treated under EA NM-010-99-038 Programmatic Noxious Weed Control for the AUFO and would therefore not be affected by any alternatives in this EA.

Dirt stock tanks outside of the AUFO's administrative area but within the watershed would not be treated or would need to have NEPA completed for each action. While this is technically possible to do it would involve a (perhaps) prohibitive amount of time and effort. It could also bring into question the segmentation of NEPA analysis for the overall watershed area.

Soils & Watershed Resources

As identified in the **Vegetation** impact section above, exotic and invasive plants present within the watershed treatment areas would continue to exist for an extended time period and would likely expand their dominance. This would prevent the vegetation community from moving toward its natural potential.

The lack of overall improvement (or degradation) in the riparian vegetation community would result in the continued heavy silt loads being passed from this watershed into the Rio Puerco and the Rio Grande. This would result in a limitation to our ability to meet CWA requirements and hence leave the watershed in non-compliance with the CWA and several other laws. Therefore, a negative impact to soils and watershed resources would result from the adoption of this alternative.

Riparian Resources

The treatment of noxious weeds (including saltcedar) outside of the identified riparian areas will continue to be conducted under EA NM-010-99-038 Programmatic Noxious Weed Control for the AUFO. Salt Cedar within the identified riparian areas will be treated by cut stump and other ground based methods as identified in the FIES/HMP for Riparian and Aquatic Habitat Management in the Albuquerque Field Office (August 2000). This plan does not cover the treatment of noxious weeds other than saltcedar nor does it include saltcedar treatments on the entire watershed. Limited saltcedar treatments within areas covered by existing riparian area CRMPs will continue. The overall effect of these limited treatments will be small improvements in the riparian areas with an overall expansion of saltcedar throughout the watershed area.

The inability to treat the majority of the watershed will result in a continued expansion of saltcedar and other noxious weeds throughout the watershed and will likely prevent the Chico Arroyo and its tributaries from ever improving to a fully functional condition. Therefore, a negative impact to riparian resources would result from the adoption of this alternative.

Wildlife

Without large scale improvements in the vegetative and subsequently hydrologic conditions in the riparian areas in the Chico watershed there is no possibility of developing the long term potential habitat suitable for the Southwestern Willow Flycatcher and other riparian obligate Neotropical Migratory birds. Currently no suitable habitat for these species occurs within the watershed. Therefore, a neutral to negative impact to these bird species would result from the adoption of this alternative.

Many wildlife species use these riparian areas extensively for wintering, nesting, and migrating habitat. Without improvement these areas will not be capable of fully supporting these species needs. Therefore, a neutral to negative impact to these species would result from the adoption of this alternative.

Threatened, Endangered & Other Special-Status Species

Informal consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act was conducted for these areas and actions in the FIES/HMP for Riparian and Aquatic Habitat Management in the Albuquerque Field Office, and the Southwestern Willow Flycatcher Management Plan. A determination of “No Affect” due to lack of suitable habitat was made for treatments in these areas at that time.

These treatment areas contain no suitable habitat for Mountain Plovers or Southwestern Willow Flycatchers, therefore there will be no affects from these treatments.

No negative impacts to any T&E or Special Status Species will result from any alternatives in this EA.

Wilderness

The quality of the wilderness experience would remain unchanged. The physical presence of exotic invasive plants would prevent 49,363 acres of the Empedrado, Ignacio Chavez, and La Lena WSA’s from returning to a natural vegetation community and allowing natural processes to operate more freely.

Visual Resources Management

No change in VRM classes would be anticipated under either Alternative. Sensitivity levels and distance zones would remain unaffected.

Recreation

The quality of the recreational experience would remain unchanged.

ACEC’s and SMA’s

There would be no change in the status or actions of any ACEC’s or SMA’s within the Watershed under either alternative.

Cultural Resources

Under the No Action Alternative, no impacts would occur to cultural resources in the Chico Watershed.

Paleontological Resources

Under the No Action Alternative, no impacts would occur to paleontological resources in the Chico Watershed.

CUMULATIVE IMPACTS

Rangeland Management

All assessed riparian areas within the watershed are currently managed by the exclusion or special winter use only of livestock. Therefore, there would be no impacts to riparian grazing management under any alternatives in this EA.

Riparian Resources

The phase I treatment area contains approximately 380 of the 2,226, or approximately 17% of the assessed acres of riparian areas in the Resource Area. Therefore, approximately 17% of the riparian areas in the Resource Area would remain in a non-functional to functional at risk category for an extended period due to the dominance of exotic vegetation and limitations of manpower to manually treat significant portions of it.

Wilderness

Approximately 116,000 acres or 13 percent of the 896,500 acres of surface lands administered by the Albuquerque Field Office (AUFO) are designated as WSAs. The removal of exotic invasive plants would allow 49,363 acres (42 percent of the total WSA acres managed by the AUFO) to return to a natural vegetation community and allowing natural processes to operate more freely.

Visual Resource Management

No change in VRM classes would be anticipated under either Alternative.

Recreation

No change in the quality of the recreational experience over the Resource Area would be anticipated under either Alternative.

ACEC's and SMA's

There would be no change in the status or actions of any ACEC's or SMA's within the Resource Area under either alternative.

Cultural Resources

No cumulative impacts to cultural resources within the Resource Area will occur under either alternative.

Paleontological Resources

Under the No Action Alternative, no cumulative impacts would occur to paleontological resources in the Resource Area.

ALTERNATIVE B—PROPOSED ACTION

Vegetation

Implementation of the proposed action would be a significant start in restoring the native riparian vegetation in the watershed. The primary herbicides to be used, Arsenal and Roundup, are broad spectrum herbicides so they will kill most of the understory species associated with the saltcedar. Experience has shown that the vegetation will recover within 2 years following treatment. Most of the dense saltcedar stands, however, have no understory and therefore the impacts to this vegetation would be minimal.

Areas containing significant cottonwood and willow numbers, or significant grass and grasslike species will be avoided.

Rangeland Management

All assessed riparian areas within the watershed are currently managed by the exclusion or special winter use only of livestock. Therefore, there would be no negative impacts to riparian grazing management under any alternatives in this EA. As the riparian vegetation condition improves it is expected that winter use forage will improve significantly and overall should result in positive impacts to the livestock industry.

Soil & Watershed Resources

All riparian areas within the watershed would have an accelerated opportunity to improve, and reach their site dependent growth potential more quickly. This increase in native vegetation density within the Chico Arroyo would increase the amount of sediment retained, and provide more streambank protection. This would reduce the amount of sediment entering the Rio Puerco and Rio Grande systems and help meet CWA goals.

Riparian Resources

All riparian habitat within the watershed would have the opportunity to improve and, over the long term, reach its site dependent growth potential. The primary users of these areas would be wildlife. This increase in vegetation density within Chico Arroyo would increase the amount of sediment retained, provide more streambank protection, and reduce the amount of sediment entering the Rio Puerco and Rio Grande systems. The public funding required to protect the riparian areas would be reduced to a very low level, because fences and water distribution improvements would not need to be built.

Wildlife

Expected improvements in the vegetation and hydrology within the riparian areas of the Chico watershed will develop habitat suitable for the Southwestern Willow Flycatcher and other riparian obligate neotropical migratory birds. Currently no suitable habitat for these species occurs within the watershed. Therefore, a positive impact to these bird species would result from the adoption of this alternative.

Many other wildlife species use these riparian areas extensively for wintering, nesting, and migrating habitat. The anticipated rapid improvements from the proposed action in the native riparian vegetation will result in a significant improvement in wildlife use of these riparian habitats.

Threatened, Endangered & Other Special Status Species

Refer to the discussions under Alternative A. No negative impacts to any T&E or Special Status Species will result from any alternatives in this EA. The proposed action will help improve the possibility of long term recovery of riparian obligate species such as the Southwest Willow Flycatcher.

Wilderness

Under the proposed action, removal of Exotic Noxious Plants would improve the native vegetative condition and therefore improve the natural and scenic qualities of the WSAs.

Visual Resource Management

No change in VRM classes would be anticipated under either Alternative. Dead, grey standing saltcedar stems would remain in the treatment areas for a number of years, however these should not detract from the current VRM characteristics for the watershed. If any pre or post treatment mechanical treatments or prescribed fires are applied they would have a temporary "disturbed" appearance. These would be confined to normally flooded (dirt tanks) or flood water disturbed locations within the incised channel and would not be noticeable after the first flood event. No additional impacts to scenic quality would occur as the result of the removal of saltcedar and other noxious weeds from the Chico Watershed. Sensitivity levels and distance zones would remain unaffected.

Recreation

No reduction of available recreational resources would be anticipated under the proposed action. The quality of the recreational experience would remain unchanged. No change in ROS classification within the watershed would occur as the result of these treatments. Improved vegetative conditions resulting from the implementation of the proposed action would improve the visual naturalness of the area and the condition of wildlife habitat, which should increase hunting success and the opportunity for wildlife observation.

There would be a few days of low level helicopter flights in the area, but due to the infrequent and dispersed nature of recreational use of the watershed it is unlikely that anyone's recreational experience would be diminished. The herbicides used have been shown to be safe to all animal life and would therefore not impact recreationist's health.

ACEC's and SMA's

There would be no change in the status or actions of any ACEC's or SMA's within the Watershed under either alternative.

Cultural Resources

Herbicide spraying does not directly impact archaeological resources. Associated IWM activities such as prescribed fire, or mechanical removal of weeds may damage archaeological resources and therefore a survey and clearance of cultural resources will be conducted prior to any fires or ground disturbing activities.

Native American peoples in the vicinity of the treatment area will be consulted and coordinated with to avoid harm to cultural uses and historic practices prior to commencing any treatment activities associated with this EA.

Paleontological Resources

Herbicide spraying does not directly impact paleontological resources. Ground disturbing activities in the Torreon Fossil ACEC areas will be surveyed and cleared by BLM paleontologists prior to commencing work.

CUMULATIVE IMPACTS

Rangeland Management

All assessed riparian areas within the watershed are currently managed by the exclusion or special winter use only of livestock. Therefore, there would be no impacts to riparian grazing management under any alternatives in this EA.

Riparian Resources

The phase I treatment area contains approximately 380 of the 2,226, or approximately 17% of the assessed acres of riparian areas in the Resource Area. Therefore, approximately 17% of the riparian areas in the Resource Area would begin rapidly progressing from a non-functional to properly functioning category due to the removal of dominant exotic vegetation and expansion of native vegetation.

Threatened, Endangered & Special-Status Species

Approximately 5,000 acres of potential mountain plover habitat exist within the Chico Watershed. Mountain plovers prefer short vegetation and actually seek out grazed pastures. These treatment areas dominated by dense woody vegetation contain no suitable habitat for Mountain Plovers, therefore, implementing the Proposed Action on this watershed would cause no incremental increase in the existing or foreseeable future cumulative negative impacts within the AUFO for this species.

No current or potential habitat exists within the Chico Watershed for the peregrine falcon or bald eagle, although during migration periods (spring and fall) these species are likely to fly through the general area (central and northern New Mexico). Because no habitat exists within the watershed for the peregrine falcon or bald eagle, the cumulative,

AUFO-wide impacts of livestock grazing on these species would not change as the result of this permit being renewed.

The Proposed Action for the Chico Crossing Watershed would have “No Affect” for the remaining threatened, endangered and special-status species anywhere in the Resource Area. No incremental increase would occur in the existing or foreseeable future cumulative impacts on AUFO lands for these species.

Wilderness

Approximately 116,000 acres or 13 percent of the 896,500 acres of surface lands administered by the Albuquerque Field Office (AUFO) are designated as WSAs. The physical presence of exotic invasive plants prevents 49,363 acres (42 percent of the total WSA acres managed by the AUFO) from returning to a natural vegetation community and allowing natural processes to operate more freely. The removal of these exotic invasive plants would move these 49,333 acres toward the natural plant community desired for wilderness areas.

Visual Resource Management

No change in VRM classes would be anticipated under either Alternative.

Recreation

No change in the quality of the recreational experience over the Resource Area would be anticipated under either Alternative.

ACEC's and SMA's

There would be no change in the status or actions of any ACEC's or SMA's within the Resource Area under either alternative.

Cultural Resources

No cumulative impacts to cultural resources within the Resource Area will occur under either alternative.

Paleontological Resources

No cumulative impacts to paleontological resources within the Resource Area is anticipated from the proposed action.

SECTION 5

CONSULTATION AND COORDINATION

The following individuals and agencies were consulted during preparation of this EA.

Ernest L. Montoya--Grazing Permittee
Rudy Tenorio--Grazing Permittee
Orlando Lucero
Max Tachias
Frances Sanchez
New Mexico Department of Game & Fish
Native American Tribal Governments
Other Interested Publics
NMED

GLOSSARY

Aggradation

A process of sediment deposition that raises the floor of a stream channel.

BLM land management policy (riparian areas)

The Federal Land Policy and Management Act (FLPMA) of 1976 directs the BLM to manage public lands to provide for their multiple use and protect their natural resources for generations to come. In addition to FLPMA, numerous laws, regulations, policies, Executive Orders, and Memoranda of Understanding (MOUs) direct the BLM to manage its riparian-wetland areas for the benefit of the nation and its economy.

Under the BLM's mandate of multiple use management, a variety of activities such as livestock grazing, timber harvest, mineral extraction, recreation, and road and transportation corridor construction take place on public lands. If not managed correctly, these activities can impact the quality of riparian-wetland areas.

Cyanobacteria

Primitive bacteria that can photosynthesize and, under suitable conditions, fix atmospheric nitrogen into liquid form. Also called "blue-green algae."

Microbiotic crusts

Soil crusts formed by living organisms such as cyanobacteria, algae, mosses and lichens and their byproducts. These organisms and their byproducts create a thin layer of soil particles bound together by organic materials, and are commonly found in semiarid and arid environments throughout the world. Also referred to as "cryptogamic," "cryptobiotic," or "microphytic."

Point bar

An area of deposited sediment that develops within the curves of a stream channel. This area extends into the stream channel, forcing water to meander around it and thus slow down.

Riparian/wetland areas

Wetlands are areas inundated or saturated by surface or ground water often enough and long enough to support (and which, under normal circumstances, do support) mainly vegetation that is typically adapted for life in saturated soil conditions. Examples include marshes, lakeshores and wet meadows.

Riparian areas are a unique form of wetland that represents the transition between permanently saturated wetlands and upland areas. These areas exhibit vegetative or physical characteristics that reflect permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial pot-holes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are such sites as ephemeral channels or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

Riparian-wetland areas are grouped into two major categories:

1. Lentic--Standing (open) water habitats such as lakes, ponds, seeps and meadows.
2. Lotic--Moving (linear) water habitats such as rivers, streams and springs.

Riparian-wetland ecosystem

An area whose development is supported or constrained by the interaction of four primary components: (1) soils, (2) hydrology (water regime), (3) vegetation and (4) landforms/geology. Some resource managers regard wildlife as an additional element, because some wildlife species may alter an area's development and condition.

Sinuosity

The amount of curvature or meander a stream exhibits as it flows within a larger stream channel area.

Water regimes

A stream is a general term for a body of water flowing in a natural channel, as distinct from a constructed channel such as a canal or irrigation ditch. Streams in natural channels and point sources, such as springs and seeps, are classified as either being perennial, intermittent, or ephemeral as follows.

Perennial--A stream or point source in which the surface or subsurface flow of water is uninterrupted. Perennial waters are directly associated with a water table in the localities through which they flow. These areas generally maintain a vigorous presence or high potential of riparian vegetation.

Intermittent (semi-perennial/semi-ephemeral)--A stream or point source in which the flow of surface or subsurface water is regularly interrupted for a period of days to months. Semi-perennial sources have shorter periods of interruption, days to weeks, while semi-ephemeral sources have no-flow periods of weeks to months. These areas maintain a variable amount of riparian vegetation, which may become restricted to very limited and discontinuous sites. Such areas are generally more sensitive to disturbance and excessive use.

Ephemeral--A stream or point source that flows only in direct response to precipitation. The channel or point of exit is permanently above the local water table. These areas generally cannot, nor do they have potential to maintain riparian vegetation.

REFERENCES

Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management; February 22, 2000 (65 FR 8834).

Rio Puerco Watershed Act; H12212, Omnibus Parks And Public Land Mgt. Act, October 1, 1996, Title IV-- Rivers And Trails, Sec. 402.

U.S. DOI/BLM: Final EIS for Vegetation Treatment on BLM Public Lands ROD, July 1991, provides for the use of chemical control as one technique in an integrated management program. Appendix I, "Target Plant Species" Identifies Salt cedar, Tamarix spp. as a target species in New Mexico for chemical treatment. The proposed action meets the priority 1 selection criteria for vegetative treatment

U.S. DOI/BLM/AUFO: Albuquerque Riparian & Aquatic Habitat Management Plan/EIS amendment to the Rio Puerco RMP provides a specific decision for this proposal. In Table 3-2, on page 3-9, Arroyo Chico - Implement Management Actions: "Control Tamarisk".

DOI/BLM/AUFO: Southwestern Willow Flycatcher Management Plan - Rio Puerco Resource Area, April 1998; lists "Salt Cedar Control" as a habitat restoration action for the Azabache and Seccion Arroyo segments of the Chico Arroyo.

National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 et seq.)

Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. 4701 et seq.)

Lacey Act, as amended (18 U.S.C. 42)

Federal Plant Pest Act (7 U.S.C. 150aa et seq.)

Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2801 et seq.)

Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)

Omnibus Consolidated Appropriations Act of 1997 - Section 124 of PL 104-208 - which provides a framework by which the Bureau of Land Management (BLM) may fund work on private land which has direct benefit to biotic resources on public land.

Executive Order 13112 - Invasive Species, February 3, 1999: ... to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause

U.S. DOI/BLM/AUFO Instruction Memorandum NM-010-99-01; AFO Weed Prevention Schedule, May 14, 1999: Goal 5 - Integrated Weed Management (IWM) - The Field office will determine the best management options using a combination of the four general categories identified for weed management Cultural, Physical Control, Biological Control or Herbicides.

U.S. DOI/BLM Interim Management Policy for Lands Under Wilderness Review (IMP, 1995): Under Chapter III, C.2. - "Vegetative manipulation by chemical, mechanical, or biological means will be permitted for: control of noxious weeds and individual exotic plants such as tamarisk when there is no effective alternative and when control of the noxious weed or exotic plant is necessary to maintain the natural ecological balances within a WSA or portion of a WSA".

U.S. DOI, U.S. Fish and Wildlife Service (USDI, FWS). 2000. New Mexico County List Endangered, Threatened, and Candidate Species and Species of Concern. U.S. fish and Service, New Mexico Ecological Services Field Office, Albuquerque, NM. (March 3, 2000)

U.S. DOI/BLM/AUFO: 1986 (1992 rev.). *Rio Puerco Resource Management Plan and Record of Decision*. Albuquerque, NM:Albuquerque District, Rio Puerco Resource Area.

U.S. DOI/BLM/AUFO: 1998. *Rio Puerco Resource Area - Southwestern Willow Flycatcher Management Plan*.Albuquerque, NM:Albuquerque District, Rio Puerco Resource Area.