

policies and activities on minority populations and low-income populations.”

Eddy County had a population of approximately 51,658 in 2000. This represents 2.8 percent of the total New Mexico population. The 2000 census found that 70.1 percent of the population is considered “urban” or living within an urbanized area. In the case of Eddy County, this reflects the fact that 49.6 of the total county population resided in the City of Carlsbad. There is a large Hispanic population in the county (38.8 percent of the total in 2000) (Bureau of Reclamation 2003).

Chavez County had a population of approximately 61,382 in 2000. This represents 3.4 percent of the total New Mexico population. The 2000 census found that 73.6 percent of the population is considered “urban” or living within an urbanized area, residing primarily in the City of Roswell. There is a Hispanic population in the county (43.8 percent of the total in 2000) (Bureau of Reclamation 2003).

Indian Trusts Assets

Indian Trusts Assets (ITAs) are “legal interests” in assets held in trust by the U.S. Government for individual Indians or tribes. Lands, minerals, water rights, hunting and fishing rights, claims, titles or money are some of the assets held in ITAs. As assets held in trust, ITAs cannot be sold, leased, or alienated without the express approval of the U.S. Government. Secretarial Order 3175 and Reclamation policy require that Reclamation evaluate and assess impacts of a proposed project on ITAs. This requires inventorying all ITAs within the Research Project area. Should any ITAs be impacted, mitigation of impact must be undertaken.

To date, Reclamation has received no tribal claims regarding the sacred nature of any location within the Research Project Area. Correspondence with the Mescalero Apache, the Commanche, and the Kiowa was conducted in conjunction with the initial Traditional Cultural Properties (TCPs). Although all of the groups contacted made statement to the effect that they recognize the importance of the Pecos River to their general cultural heritage, no concern was voiced about the sanctity of any particular property. (Bureau of Reclamation 2003).

Chapter 4. Environmental Consequences

Soils

Soil erosion is not a major concern in the Research Project area, except along certain riverine reaches of the Pecos River. Upstream of the old Lake McMillan Delta and north of the Brantley Reservoir, levees, steep banks and river channelization into a straight narrow space has increased the potential for erosion in these areas. (Brantley and Avalon Reservoirs RMP Project Final EA, Oct 2003).

No Action Alternative is expected to maintain current productivity.

Proposed Action - Vegetation Management Program is expected to increase productivity of soils through improved soil moisture availability and reduced soil disturbance from maintenance equipment. Within this alternative, **Herbicide Treatments, Biological Control, and limited Mechanical Treatments**, would maintain a lower level of productivity of saltcedar growth which would increase productivity of soils through improved soil moisture availability.

This extend of treatments is initially only a fraction of Carlsbad Project Land. With time and positive results, the acreage treated would likely increase through the magnitude of total acreage cannot currently be speculated. Thus, improvements in soil conditions may be minimal from a Carlsbad Project or regional perspective. The Reclamation Denver Office is planning to study and perform monitoring of bank stabilization in these areas pending fiscal year funding.

Range Condition

Reclamation land in the Research Project area consists primarily of upland range, with small draws occurring occasionally. The only true riparian areas in the grazed portion of the Research Project area are on those lands surrounding Avalon Reservoir. Riparian areas around Avalon Reservoir have been invaded by saltcedar, which provides some shade for the livestock but has no grazing value. Saltcedar dominates the riparian-wetland communities bordering the Pecos River in the northern portion of the Research Project area upstream of Brantley Reservoir. Decadent stands of saltcedar with little or no understory vegetation border the river banks. Understory vegetation that remains includes Bermuda grass, cattail, and rushes. Although saltcedar stands are present on the historic floodplain, they are not considered to be riparian-wetland plant communities because of the absence of riparian-wetland plant species in their understories. The expected effects from this action are as follows:

No Action Alternative would have no change.

Proposed Action - Vegetation Management Program:

Under this alternative **Herbicide Treatments** would create conditions favorable to range improvement through improved soil moisture relationships and reduced competition. **Biological Control** would have slight improvement over time due to the beetle feeding on the saltcedar, reducing their abundance. **Mechanical Treatments** would be expected to create conditions favorable to improvement when followed by reseeding, and adequate rainfall.

Noxious Weed Infestations

Minimizing soil disturbances and bare ground situations would reduce the likelihood of noxious weed infestations and spread (*see Table 1 for the “Environmental Consequences Summary of Impacts”*).

The **No Action** would moderately raise the risk of noxious weed infestations. The **Proposed Action - Vegetation Management Program** would lower the risk of noxious weed infestation under successful revegetation with desirable species.

Reclamation maintains an ongoing cooperative and joint effort with local, state, and other federal agencies in the identification, mapping, treatment and monitoring of noxious weeds.

Reclamation is currently working on an Integrated Pest Management Plan which includes treatment of vegetation on dams (see Appendix J). This plan will provide guidance on following low-impact methods recommended for controlling unwanted vegetation on three dams (Sumner, Brantley and Avalon) along the Pecos River in New Mexico. No herbicides that are mobile and could have the potential for water contamination will be recommended for use.

Grazing

All alternatives provide for continued grazing within the areas however, the effects of each

alternative may differ.

The **No Action Alternative** would have no change in existing resources.

Under the **Proposed Action - Vegetation Management Program**:

Herbicide Treatments would provide for potential gains in forage under current grazing management. **Biological Control** would provide for potential gains in forage under current grazing management. **Mechanical Treatments** would provide better accessibility for grazing animals and their management.

Water Quality

The **No Action Alternative** would have no change in water quality.

Under the **Proposed Action - Vegetation Management Program**:

Herbicide Treatments are not expected to negatively impact water quality. A 2,4-C label has been issued by the Environmental Protection Agency for the use of imazapyr herbicide in New Mexico that allows for inadvertent overspray onto water when treating adjacent saltcedar. Imazapyr herbicide readily breaks down in water in the presence of sunlight and has extremely low mammalian and aquatic effects. Recently imazapyr has received an aquatic label under product name habitat herbicide. Precautions according to product labels will be adhered to protect water quality. **Biological Controls** may decrease some soil movement into the waters from reduction of bare ground sites. Historically, the Pecos River has carried very high sediment loads, especially during high stormwater runoff periods. The river drains vast areas of arid grasslands and shrublands with highly erodible soil surfaces (Reclamation, 2003). **Mechanical treatments** such as root plowing, grubbing, mowing or shredding are not anticipated to impact water quality.

Removal of saltcedar from the banks and shoreline of the reservoirs have the possibility of adding to sedimentation in the river but effects are unknown at this time.

Water

The net water savings from removal of salt cedar is dependent on the replacement vegetation. Although saltcedar has been shown to consume significant amounts of water if a high water use plant begins growing, the net water use will be minimal. If a low water use plant replaces the salt cedar water savings will be greater. The interaction between the Pecos River and the Roswell basin aquifers is not adequately identified to determine whether any of the saved water will reach the Pecos River.

Fisheries

The **No Action** and **Proposed Action - Vegetation Management Program** are not anticipated to adversely impact fisheries within the Research Project area. For alternatives using approved herbicides, application of those herbicides will be done according to product label, state law, and EPA guidelines. Imazapyr (herbicide proposed for the control of saltcedar) is of low toxicity to fish and invertebrates (appendix E).

Wildlife

The **No Action** alternative would not adversely impact wildlife. The **Proposed Action - Vegetation Management Program** may potentially increase wildlife diversity as a result of the

reduction of monotypic saltcedar stands and eventual replacement by more diverse, native plant communities. The effects of this alternative to wildlife would, however, not be observed for several years since establishment of native vegetation would not be instantaneous after the management of saltcedar. The Reclamation Denver Office is planning to study and perform monitoring of wildlife in these areas pending fiscal year funding.

Herbicide Treatments and Mechanical Treatments may have some short term impacts to birds, small mammals, and herpetofauna who use saltcedar for cover, however overall species diversity would potentially increase over time.

Biological Controls may potentially increase wildlife diversity under improving range conditions.

Threatened and Endangered Species

Bald Eagle and Interior Least Tern

The **No Action** alternative would have no adverse impacts to the Bald Eagle or Interior Least Tern within the Research Project area. Because this alternative does not involve habitat alteration, no adverse would be anticipated.

The **Proposed Action – Vegetation Management Program** alternative would not have an adverse affect on the Bald Eagle because the target habitat, monotypic saltcedar, is not utilized by this species. Aerial application of herbicide would not affect the Bald Eagle because the application of herbicide, consistent with the product's label restrictions, would not be applied within 50 feet of the wetted perimeter, eliminating the potential for affects to fishes—the food source of wintering Bald Eagles.

The **Proposed Action – Vegetation Management Program** alternative would have no adverse affect on the Interior Least Tern because of the proximity of the 2004 tern colony to the proposed vegetation management area—over ½ mile. Further, the application of the herbicide will be such that it will not be administered within 50 feet of the wetted perimeter, eliminating potential affects to the fishery for which the terns are dependant.

Gypsum Wild Buckwheat

Because the Gypsum Wild Buckwheat only occurs on gypsum outcrops on the extreme western edge of the Research Project area which has no saltcedar to treat. None of the proposed alternatives within the Research Project area will have any effect on this federally threatened plant.

Pecos Bluntnose Shiner

The Pecos bluntnose shiner (shiner) exists within the project area. The shiner is restricted to the mainstream and flowing tributaries of the Pecos River, ...downstream to the inflow area of Brantley Reservoir (Klingel, 2000a), but in periods of low water, shiners may find their way into the reservoir and through the dam outlet works to the river channel below Brantley. The shiner had not been seen below Brantley Dam since the completion of the dam in 1987, however in 2003, several shiners along with other pelagic spawning fishes were collected by the New Mexico Department of Game and Fish (Game and Fish) between Brantley Dam and Avalon

Reservoir. The Game and Fish reported to Reclamation, in an e-mail (Larson, 2003), on November 6, 2003:

“An unusual development occurred during our (NMDGF and USFWS) "Tour of the Pecos" sampling. Two samples from sites below Brantley Dam, Rocky Arroyo and Hwy 30 Crossing, produced specimens of pelagic spawning fishes, including Pecos bluntnose, Speckled chub, Plains minnow, Rio Grande shiner, and Plains minnow... These species...have not been collected in this section for many years. ...they probably drifted as eggs and larvae through Brantley Dam.”

Concern for this species establishing itself below Brantley Dam is low because of the limited amount of optimal shiner habitat below the dam, including higher concentrations of salinity than the shiner prefers. However, this reach is being monitored closely for reoccurrences of this species. Shiners above Brantley Reservoir within the project area are mostly young-of-year or first year fish and have been displaced from more suitable habitats above in the Pecos River by primarily operational block releases. Shiners remain federally threatened and protected wherever they are found, however, the U.S. Fish and Wildlife Service (Service), has recognized the loss of shiner eggs and larvae as a result of block releases which have transported them into the Brantley area, cited in the 2003 Biological Opinion, (Service, 2003):

“These block releases are anticipated to transport the eggs and larvae downstream into Brantley Reservoir. This will harm many eggs and larvae by modifying their habitat and subjecting them to abnormally large and lengthy discharges that will transport them into Brantley Reservoir where death will occur, or where they will be unable to successfully develop and breed and thereby contribute offspring to the next generation. It will also harass larvae through the disruption of the normal behavior pattern of seeking sheltered mesohabitats as they would under more natural, lower discharges. It is anticipated that killing of larvae and eggs will occur when they reach Brantley Lake through consumption by predatory fish, by exposure to higher salinity, or by other unsuitable habitat conditions in the reservoir.”

Further, the Service stated in the 2003 Biological Opinion under “Effect of the Take” that:

“In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to result in jeopardy to the shiner or destruction or adverse modification of critical habitat.”

The population of shiners in this area represents an insignificant portion of the population and do not contribute to sustaining main population of shiners above. The Vegetation Management Program will not impact any Pecos bluntnose shiner. Research studies on invasive plant treatments will be conducted to avoid any potential effects to listed species. Use of the herbicide Imazapyr will not be toxic to the Pecos bluntnose shiner.

Pecos Gambusia

The Pecos Gambusia is found primarily in the Bitter Lake NWR and the Salt Creek Wilderness areas of the Pecos River away from the immediate project area. No populations of these fish have been collected since monitoring began in 1986 or are known to exist permanently within

the Research Project Area. For alternatives using approved herbicides, application of those herbicides will be done according to product label, state law and EPA guidelines. Integrity of the channel will be preserved whenever possible. The proposed action would have “no effect” to the Pecos Gambusia.

No other threatened or endangered species found in Eddy County (Appendix G) would potentially be affected by any of the proposed alternatives. This determination is made based on the lack of appropriate habitat in the vicinity of the Project Area and distant proximity to known populations of the more sessile species.

In summary, Reclamation has determined that the proposed action would have a “no effect” to any Federally Listed Species.

Cultural Resources

At Brantley Reservoir the majority of the recorded cultural resource sites occur at elevations above and outside of the proposed action. All alternatives considered would have no impact to cultural resources.

Recreation and Accessibility

Impacts due to limited access during spraying and treatment is associated increased use are considered minor in relationship to the availability of public land present in the area at both Brantley and Avalon Reservoirs. Increased “use” would be dispersed at both reservoirs.

No Action Alternative would support the current levels of use.

Proposed Action - Vegetation Management Program would improve accessibility to recreation by removing physical barriers to the river channel.

Socioeconomic Considerations

The **No Action Alternative** maintains existing economies derived from river fishermen and tourist dollars spent as well as beef produced upon grazing allotments. The **Proposed Action - Vegetation Management Program** would be expected to have potentially short term negative impacts due to limited access during treatments, with net positive impacts over time with increased accessibility on the Pecos River.

Environmental Justice

The **No Action Alternative** and the **Proposed Action - Vegetation Management Program** maintains the existing conditions and would remain neutral. Disproportionately high impacts to minority groups or low-income populations were not identified under either alternative. Impacts with net positive impacts over time and low income or minority populations would not be affected by the proposed action.

Indian Trust Assets

No Action Alternative would have no effect on Indian Trust Assets. At the Research Project area, the no recorded Indian Trust Assets occur at elevations above and outside of the proposed action. **Proposed Action - Vegetation Management Program** would be anticipated to adversely impact previously unrecorded sites due to the depth of soil disturbances. All alternatives considered would have no impact to Indian trust assets. Both Brantley and Avalon

Reservoirs occupy withdrawn and acquired lands for the purposes of reservoir operations. Reclamation has received no tribal claims regarding the sacred nature of any location within the Research Project Area. Correspondence with the Mescalero Apache, the Commanche, and the Kiowa was conducted in conjunction with the initial Traditional Cultural Properties (TCPs). Although all of the groups contacted made statement to the effect that they recognize the importance of the Pecos River to their general cultural heritage, no concern was voiced about the sanctity of any particular property. (Bureau of Reclamation, 2003).

Cumulative Impacts

Cumulative Impacts are defined as: "The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions."

No Action- Saltcedar will continue to dominate large areas by the banks and edges of the reservoirs. Mowing large areas in the flood plain will continue and possible continuation of creation of new habitat for the Interior Least Tern.

Proposed Action - Vegetation Management Program would not cause irreversible loss of the potential to support native vegetation.

Change in quality and amount of habitat. Possible displacement of wildlife associated with the proposed treated saltcedar acreage due to loss of this vegetation, if native species does not revegetate. This could either reduce or increase the amount of sedimentation of surface waters within the project area, depending upon test and demonstration results with the revegetation sites and the effectiveness of spraying saltcedar.

If the Vegetation Management Program is successful, native plant communities may replace invasive species and may over the years, establish a more ecologically balanced vegetation community.

Irreversible and Irretrievable Commitments of Resources

This section describes unavoidable adverse impacts to the resources discussed in this EA/BA that would occur with the implementation of the proposed action. Unavoidable adverse impacts are impacts that are unavoidable and not able to be mitigated.

During project implementation, materials such as fossil fuels, labor, and materials would be needed to accomplish the proposed work. Generally speaking, these materials are not retrievable, but are not considered in short supply. Their use would not have an effect on continued resource availability. State and Federal public funds, which are not retrievable, would be utilized for the proposed work.

Environmental Commitments

1) The rate of dissipation testing and analysis would be performed in conjunction with aerial treatments of saltcedar with imazapyr.

2) All use of herbicides will be done in accordance with all federal mandates and as stated by Environmental Protection Agency (EPA) guides (specifically EPA Reg. No. 241-346). Environmental justice refers to the protection of human rights; particularly minority and low income populations, for any government action affecting both the human and natural environment. Environmental justice is included in this EA/BA in compliance with the Executive Order 12898, signed in 1994: Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires that "each Federal Agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of its programs, policies and activities on minority populations and low-income populations."

3) Efforts would be made to minimize and avoid impacts upon desirable native vegetation and fauna. Only saltcedar dominated sites would be treated. Site stability through proper management would include the avoidance of creating bare ground situations and avoiding adverse impacts to water quality and wildlife. This action is an essential stop gap measure to control the spread and influence of the exotic saltcedar on our native plant communities and riparian system. Significant portions of the treatments would be made via helicopter to avoid ground disturbances and to limit the disturbance to wildlife.

4) Public notification of aerial pesticide applications would be given, and the activity would be conducted in such a manner to protect the environment and the public's health and safety. At the reservoir, treatment may occur anywhere except within 50 feet of the wetted perimeter.

5) The Carlsbad Soil and Water Conservation District in conjunction with the Carlsbad Irrigation District would assist in treating noxious and invasive weed infestations and monitoring as necessary.

6) The selection of application techniques would be used to minimize effects to non-target vegetation and avoid water quality impacts. At the reservoir, treatment may occur anywhere except within 50 feet of the wetted perimeter

7) Existing dead snags would be left in place and spraying activities would occur at times other than late fall and winter. The herbicides proposed for use do not bio-concentrate in the food chain, and all label precautions would be followed to insure no effect on water quality and fisheries.

8) Reclamation proposes intense monitoring of the leaf beetle research. The number of eggs and the population increase would be monitored for at least one field season. After one generation in the cages, part of the adults or larvae of the next generation may be released on plants outside of but near the cages. Part of the adults and larvae will be retained in the cages during the remainder of the first year and through the winter to determine over wintering survival and mortality, and date of spring emergence.

9) Should evidence of possible scientific, prehistorical, historical, or archeological data be discovered during the course of this action, work shall cease at that location and Reclamation Albuquerque Area office's archaeologist shall be notified by phone immediately, with the location and nature of the findings. Care shall be exercised so as not to disturb or damage

artifacts or fossils uncovered during operations, and the proponents shall provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by the Government.

10) Discovery of Human Remains. Any person who knows or has reason to know that he or she has inadvertently discovered human remains on Federal or tribal lands, must provide immediate telephone notification of the inadvertent discovery, with written confirmation, to the responsible Federal agency official with respect to Federal lands, and, with respect to tribal lands, to the responsible Indian tribe official. The requirement is prescribed under the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3042) of November 1990 and National Historic Preservation Act, Section 110(a)(2)(E)(iii) (P.L. 102-575, 106 Stat. 4753) of October 1992.

11) Interior Least Terns - Reclamation proposes to take the follow actions a) Monitor the birds to determine population size, nesting activity, and identify immediate threats; b) Coordinate with NM Department of Game & Fish (NMDG&F), NM State Parks, and Eddy County to help prevent public access to the colony; c) Erect signage within one week to discourage public access to the area; d) Discuss water management options with the CID to avoid flooding the nests; e) Consult with the Service under Section 7 of the Endangered Species Act, if necessary, for this and other actions, that “may affect” the species; f) Determine potential long-term management options for this species at Brantley Reservoir in coordination with the Service, NMDG&F and CID; and g) Incorporate considerations for the species into ongoing EIS analysis.

Risks

As a research and treatment project, these areas are to be monitored so that all effects, positive and detrimental, can be disclosed. Once data is collected and areas observed determinations as to the best treatment methods can be better identified. We discuss the environmental impacts for each resource in Chapter 4 for the no action and the preferred alternative, integrated methods.

Table 1, Environmental Consequences (page iv) also shows effects.

Areas requiring further studies and monitoring include:

1. Concern over kochia taking over in areas where saltcedar is removed.

Test areas of different seeds mixtures and plant species are to be developed during this test and evaluation on Reclamation lands. Success of the study areas to reseed will result largely from soil and weather conditions and the selection of proper plant species adapted to the site.

2. Sediment entering the Pecos River from the lack of saltcedar to which was used to stabilize the banks. As stated in the proposed action Reclamation will perform treatment outside a 50-foot buffer along the Pecos River and the Kaiser Channel unless previously coordinated with CID for exception (river banks, not reservoirs). At the reservoir, treatment may occur anywhere except within 50 feet of the wetted perimeter

3. Herbicide entering the Pecos River during application.

Treatments will be conducted in accordance with the EPA approved label recommendations. All

treatments will meet or exceed state label standards (ensuring buffer zones are enforced and followed.) Treatments will be scheduled and designed to minimize potential impact on non-target plants and animals, checking wind speeds and directions prior to any applications.

4. Debris entering the channel. Test areas successful in control of the saltcedar have the possibility of entering into channels and causing blockage. Reclamation will need to monitor these areas and to keep as much debris as possible out of these areas.