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Bureau of Reclamation
Albuquerque Area Office
Albuquerque, New Mexico

US Fish and Wildlife Service
Southwest Region
Albuquerque, New Mexico

FINDING OF NO SIGNIFICANT IMPACT

Pecos River Channel Restoration at the Bitter Lake National Wildlife Refuge
Chaves County, New Mexico

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BACKGROUND

Historically the Middle Pecos River was a wide, sediment-laden braided river with a diversity of habitats, ranging from low-velocity backwaters to swift main channel settings. Under the natural river regime, flood flows periodically changed the river course within the floodplain. Various species, especially fish, adapted to this type of dynamic river channel and the variety of habitat that it provided. Since 1942, the ecological conditions within the Bitter Lake National Wildlife Refuge (NWR) section of the Pecos River have been degraded by excavating straight channels, encroaching nonnative vegetation, and controlling reservoir flows. As part of the Endangered Species Act consultation process associated with the Carlsbad Project Water Operations and Water Supply Conservation Final Environmental Impact Statement, the Bureau of Reclamation agreed to “partner with Federal, state, and private entities to participate and assist in the completion of ongoing habitat improvement projects on the Pecos River.”

SUMMARY OF THE PROPOSED ACTION

The environmental assessment (EA) addresses phased proposals over the next ten years to improve the riparian and in-channel habitat along approximately seven river miles of the Pecos River in the Middle Tract of the Bitter Lake NWR by restoring the river flows to dynamic conditions. A combination of restoration techniques would be used that include removing vegetation, lowering banks, changing the channel morphology, restoring flow into historic oxbows, and revegetating. The preferred plan involves two phases of habitat improvement projects within the refuge, which are discussed in detail and that reflect the current level of planning and proposed design. The preferred plan projects also reflect future actions on other river segments, which are analyzed more generically, commensurate with the level of available information.

Reclamation would conduct the restoration activities for Phase I in Reach 4 in collaboration with the US Fish and Wildlife Service (the Service). Proposed restoration techniques include plugging and diverting the river into a historic oxbow (Oxbow 4) in Reach 4, excavating a meandering channel within the oxbow (12 feet wide at the base and 44 feet wide at the top), removing nonnative vegetation, lowering banks, and revegetating. The reconnected channel would replace approximately 3,000 feet of the current channel with approximately 8,200 feet of channel in the historic oxbow. The anticipated amount of reconnected floodplain is expected to total 179 acres. The new channel would total approximately 1,018 acres.

Phase II restoration would be conducted in Reaches 2 and 3 by a collaborative partnership consisting of the Service, the World Wildlife Fund and the New Mexico Interstate Stream Commission (NMISC), with funding from the State of New Mexico. Proposed restoration actions include removing nonnative vegetation from bank levees and active bars to deter the development of armored levees. Following this removal, additional restoration would be undertaken as needed, including lowering the banks, reconnecting a small oxbow lake with the northern part of Reach 2, and revegetating. The combined width of the channel and floodplain could be restored up to 350 feet, providing room for the existing 150-foot-wide channel and adequate floodplain. The Phase I and Phase II restorations are planned to begin in the winter of 2009.

Over the next ten years, the Service would continue to pursue partnerships and funding to conduct additional restoration in Reaches 1, 2, 3, and 4. The proposed combination of restoration

activities would be tailored to the specific characteristics of each reach, complementary to Phases I and II, and similar in scope. The Proposed Action is inclusive of the Phase I and Phase II work, as well as additional restoration actions that may be conducted at Reaches 1 through 4 as funding becomes available.

ENVIRONMENTAL IMPACTS RELATED TO THE RESOURCES OF CONCERN

The effects of the proposed action and reasons for a Finding of No Significant Impacts are addressed in detail in the EA and are summarized below.

Land Use—The Bitter Lake NWR is bordered by private land, Bureau of Land Management- (BLM-) administered land, and state trust lands. Surrounding land uses include residential, farming and ranching, recreational, mining, and oil and gas development. Special management areas in the Middle Tract of the Bitter Lake NWR include the 300-acre Bitter Lake Research Natural Area (RNA) and the 700-acre Lake St. Francis RNA. There would be no change or effects on surrounding land uses, no anticipated effects on refuge facilities and infrastructure, and no effects on the refuge research natural areas or the Salt Creek Wilderness in the North Tract of Bitter Lake NWR.

Geology and Soils—There are no prime or unique farmlands in the proposed project area. The proposed restoration techniques for Phases I and II would disturb soil along the banks, floodplain, and terraces in the project area, access routes, on-site disposal areas, and staging areas. Mechanical clearing methods would remove soil and vegetative cover, leaving soils exposed and subject to wind and water erosion. Abatement measures would be used to reduce dust. Soils would be subject to minor short-term compaction from heavy equipment use. There would be long-term minor improvement in soil quality, primarily by removing salt caused by saltcedar. No loss of prime and unique farmlands or mineral resources is expected.

Air Quality—The Salt Creek Wilderness is designated as a Class I area. The rest of the Bitter Lake NWR, including the proposed project area, is considered a Class II air quality area. Air quality at the Bitter Lake NWR is good, with blowing dust being the most immediate air pollution problem. Implementing the Proposed Action would result in short-term increases in fine particulate matter (PM₁₀) and other pollutants due to construction. Visibility impacts due to dust and smoke from burning woody debris would be temporarily visible within the Class II air quality area, which allows for moderate amounts of air quality degradation. The Salt Creek Wilderness Class I airshed would not likely be impacted due to distance and the southwesterly prevailing winds. Effects are anticipated to be negligible.

Water Resources—The Bitter Lake NWR includes a large variety of surface water types, including arroyos, spring-fed streams, isolated oxbow lakes, large and small playa lakes, developed impoundments, artesian springs, and approximately sixty sinkholes throughout the refuge. The Proposed Action is designed to minimize risks of damage or loss of other surface water features. It is designed to have a major long-term positive effect on channel morphology, sinuosity, and river function within the physical context of current conditions and river operations. Bank lowering and grading of vertical cut banks, along with the changes in channel morphology, would reduce the current bank cutting and improve sediment transport. Care would be taken to minimize any detrimental effects of sediments and debris, as outlined in Chapter 5, Environmental Commitments. The lead agencies would ensure the implementation of the

conditions regarding soil, sediments, and debris, as required by the Section 404 Nationwide Permit 27 from the US Army Corps of Engineers (USACE) and the New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQG) Section 401 water quality certification.

The effects of the Proposed Action on flood control would be moderate and beneficial. Reconnecting the channel with the floodplain and returning sinuosity to its length would improve flood peak attenuation and flood flow storage. There would be a loss of oxbow lake habitat, but these features are not unique on the refuge. Effects on other surface water features should be negligible or minor and positive.

The two major aquifers that provide the largest supplies of water are the Permian artesian aquifer and the shallow-water aquifer in the alluvium deposits and terraces. While the Proposed Action would increase the area subject to evaporation loss, full implementation of Phase I and Phase II may result in increased flow in the Pecos River channel due to greater connectivity with the local aquifer. Removing nonnative phreatophytes from the channel banks may also initially increase water to the system, although the NMISC does not recognize any credit for water salvage activities. Surface water features that are connected to the shallow aquifer may benefit from higher water tables. Effects on the deeper artesian aquifer are unknown.

Potential contaminant sources in the area include natural salinity, irrigated agriculture, grazing, feedlots, oil and gas production wells and pipelines, septic tanks, and historic municipal wastewater discharges to Hunter Marsh, a natural wetland at the south end of the Middle Tract. The Proposed Action would cause short-term increases in sedimentation in the river from ground disturbance, exposed soils, and erosion and could result in minor risk of inadvertent discharge of pollutants into surface waters from construction equipment. Water from the oxbow lake would be added to the main stem of the river, temporarily increasing organic matter immediately after reconnecting the oxbow. These short-term impacts and risks would be minimized by implementing control measures. Negligible and short-term effects on water quality are anticipated during restoration work. As beneficial vegetative cover returns, long-term water quality in this section would improve in the long term to a better balance between flows and sediment loads, thereby restoring the sand beds and floodplain and reducing salt deposited by saltcedar. Better river function can also improve the ability of the river to contend with pollutants from other sources.

The Proposed Action would not exceed water rights held by the Bitter Lake NWR or affect the water rights of other parties. Based on conservative estimates of water usage—that is, higher than would likely occur—the NMISC anticipates that Phase I restoration may consume 1.9 ac ft/yr, and Phase II may consume 7.6 ac ft/yr, for a total of 9.5 ac ft/yr (Appendix C). The Service will monitor long-term effects and will work with the NMISC to address any depletions.

Biological Resources—Areas adjacent to the water courses contain riparian vegetation composed primarily of coyote willow, seepwillow, common reed, and exotic saltcedar. Common reed, Russian thistle, kochia, and saltcedar are the major invasive plant species on the refuge. Removing the saltcedar would allow the development and expansion of more diverse riparian vegetation and habitat capable of supporting a greater variety of wildlife. Other species, such as

willows, cottonwoods, grasses, and cattails on the banks, may be affected by mechanical removal. There would be a short-term loss of natural cover provided by vegetation.

Refuge wetlands, ranging from relatively freshwater flowing streams and oxbow lakes to brackish impoundments and natural sinkholes to hypersaline playa lakes, support a variety of plant and animal species and are vital to migratory birds. The isolated gypsum springs, seeps, and associated wetlands protected by the refuge have been recognized as providing the last known habitats in the world for several unique species. Long-term positive effects for wetland vegetation and function are anticipated by removing saltcedar, reconnecting the river and the floodplain, and creating the new meanders. These actions are anticipated to result in a higher water table, more diverse plant communities, and more areas where self-sustaining wetlands would develop. No adverse effects are anticipated on refuge impounded wetlands or other wetlands outside of the immediate vicinity of the Pecos River.

To date, over 360 bird species have been documented on the refuge, including 44 nesting species. In addition, 59 mammal species, 40 reptile species, 12 amphibian species, and 24 fish species have been identified on the refuge and surrounding area. The refuge also supports one of the most diverse populations of dragonflies and damselflies in North America. Long-term positive effects are anticipated for wildlife species. Restored channels, floodplains, wetlands, and riparian vegetation are expected to increase the abundance of birds, mammals, reptiles, amphibians, and fish relative to expanded habitat availability and quality. During restoration, some wildlife species may be killed and their dens or nests destroyed by heavy equipment. Noise associated with restoration could also affect nesting or reproductive behavior of some species. However, work would be conducted outside of nesting seasons and locations, and expected wildlife loss would be very limited. These minor short-term adverse impacts in areas of poor habitat would be outweighed by the overall benefits to wildlife and habitat that would result from the Proposed Action during the life span of the project.

Chaves County includes over 75 special status species, including New Mexico species of concern, many of which are found on the refuge. The Bitter Lake NWR provides a critical role in maintaining a sanctuary for at least 27 state or federal threatened, endangered, or candidate species. Because the Bitter Lake NWR has been identified as important core conservation and recovery area for the Pecos sunflower, restoration actions will be coordinated with the current review of water and wetlands management at the refuge. The Pecos sunflower should benefit from the removal of saltcedar through less competition and gradually reduced soil salinities. The one population of Pecos sunflowers in the critical habitat that could be negatively affected by the proposed action would be protected by rock vane revetment structures.

Protected aquatic invertebrates include the Roswell springsnail, Koster's springsnail, Noel's amphipod, and Pecos assiminea. Restoration is not expected to negatively impact their habitats, which are located far from the Proposed Action and the river, although negligible or minor beneficial effects could occur if a higher water table were to improve spring flows or to support suitable habitat.

Migratory and nesting birds were the primary reason that the refuge was chartered. Special status migrant or wintering bird species include the bald eagle, American peregrine falcon, Baird's sparrow, mountain plover, southwestern willow flycatcher, Bell's vireo, brown pelican, and the

neotropical cormorant. A small population of interior least terns has nested at the Bitter Lake NWR consistently for over 50 years. Depending on the season, the Proposed Action may have minor short-term negative effects on some special status migratory birds due to noise and removal of vegetation used for cover, perches, or possibly nesting. There are no negative impacts on the interior least tern expected from this action. The restoration is not expected to create any additional nesting areas along the river but may provide additional feeding and loafing areas in backwaters and small sandbars. Removal of saltcedar would remove habitat used potential predators of nesting terns. The action should also enhance the abundance and accessibility of tern prey (fish and invertebrates).

Fish species include the Arkansas River shiner, Pecos gambusia, Pecos pupfish, Mexican tetra, greenthroat darter, and the Pecos bluntnose shiner. The proposed restoration is expected to have long-term minor to moderate beneficial effects on shiner reproduction, recruitment rates, and survival at all of its life stages. The Proposed Action would result in negative effects on the shiner during restoration from the use of construction equipment in the channel and disturbance of sediments. Impacts would be short term but could result in take of a small number of the species. Through its Intra-Service Section 7 consultation, the Service has determined that the Pecos River Restoration at Bitter Lake National Wildlife Refuge, Chaves County, New Mexico may affect, but is not likely to adversely affect, the Pecos bluntnose shiner. The restoration is expected to improve habitat for other riverine fishes. The Pecos gambusia is not found in the Pecos River but lives in spring heads and sinkholes at off-channel sites and would not be negatively affected by the restoration.

Cultural Resources—With the exception of the staging and river access locations, work would be conducted in active or recently active floodplains, channels, or oxbows, which are a highly disturbed setting. No cultural resources have been recorded or are expected to be present in the proposed restoration project area. The New Mexico Office of Historic Preservation has concurred that the Proposed Action is not expected to have any effects on cultural resources. No concerns or traditional cultural properties were identified by the parties consulted.

Recreation—Principal recreation at the Bitter Lake NWR include wildlife observation, hiking, photography, environmental education, and limited hunting and camping. Implementing the Proposed Action would result in long-term beneficial recreation impacts with an increase in the abundance and variety of wildlife and more recreation and interpretive opportunities in the restored areas near the Pecos River. Minor short-term negative effects on wildlife-based recreation in the refuge would result from construction.

Visual Resources—In the long term, visitors may experience improved visual quality of the site and its surroundings consistent with natural riparian function and vegetation. The viewing platform at the Phase I restoration site would create a new viewpoint and afford the public a new opportunity to observe the Pecos River in the restored oxbow. Short-term minor negative effects on visual resources in the refuge would result from construction vehicles and equipment, dust, and the loss of vegetative cover.

Noise—Noise levels at Bitter Lake NWR are very low. As a wildlife refuge and a location for wildlife observation there is a higher degree of sensitivity to increases in noise levels. The noise from construction would be short term, variable, and minor but may exceed 80 dBA in the

immediate vicinity of the activity. With the exception of the Phase I construction, most actions would be half a mile or more from the auto loop and other popular visitor facilities.

Socioeconomics—The Proposed Action would result in minor temporary increases in federal spending in Chaves County for construction support materials, fuels, and labor. In the long term, there would be indirect positive impacts on local and regional economies that may result from the restoration. New recreation opportunities in the restored areas may lead to increased refuge visits and visitor spending in the local economy.

Environmental Justice—Implementing the Proposed Action would not result in any disproportionate impacts on minority or low-income communities, so there would be no environmental justice impacts.

Indian Trust Assets—Twelve tribes and Native American pueblos have been solicited for their interest in government-to-government consultation on Indian Trust Assets and cultural resource concerns. No Indian Trust Assets have been identified in the project area, and no Indian Trust Assets are believed to be affected by restoration. There are no reservations or ceded lands present. Reclamation will provide tribes and pueblos with the draft EA and again afford them the opportunity to comment and enter into government-to-government consultation. Because resources are not believed to be present, no impacts are anticipated to result.

ENVIRONMENTAL COMMITMENTS

The environmental commitments to minimize potential adverse effects listed in detail in Chapter 5 of the EA will be implemented during construction and as part of the post-construction site restoration activities. All applicable permits have been obtained and all required consultations will be completed before each phase of the project begins. Specific lead agency responsibilities are addressed in agreement documents provided in Appendix A of the EA. These permits include or may include the following:

- Clean Water Act, Section 404, Nationwide Permit 27;
- Clean Water Act, Section 401, State Water Quality Certification;
- National Pollutant Discharge Elimination System permit; and
- Stormwater Pollution Prevention Plan.

Environmental commitments include the following:

- Establishing a monitoring program (outlined in Appendix B of the EA) to determine the river's response to restoration, including surface flows, groundwater levels, channel morphology, water budget, sediment, debris, and the effects of restoration on vegetative, avian, and fish communities;
- Implementing specific mitigation measures to avoid impacts on threatened and endangered species and their habitats, as identified in the Intra-Service 7 Consultation (Appendix E);
- Implementing specific permit conditions outlined in the Clean Water Act, Section 404, Nationwide Permit 27 and Section 401, State Water Quality Certification (Appendix E);
- Armoring the eastern extent of the historic oxbow channel with rock vane revetments to decrease the risk to the refuge ponds, refuge road, and Pecos sunflower habitat;

- Controlling soil erosion and sediment during construction;
- Scheduling work within the river during periods of low flow or no flow;
- Minimizing airborne soil transport and PM₁₀ through dust suppression;
- Minimizing impacts on seed germination, plants, water quality, and air quality during burning of woody debris through procedures outlined in site-specific burn plans;
- Maintaining channel capacity to pass normal and high flows;
- Complying with approved state or local floodplain management standards;
- Prohibiting the use of unsuitable materials in the river;
- Avoiding the potential for discharge of toxic pollutants into the river;
- Minimizing adverse effects on aquatic ecosystems from impoundments, flow acceleration, or flow restrictions during construction;
- Flagging and avoiding Pecos sunflowers and their habitats;
- Seining and relocating Pecos bluntnose shiners upstream from isolated pools and the portion of the Pecos River that will be filled with sediment;
- Conducting preconstruction surveys and preparing guidelines to avoid impacts on birds;
- Ensuring that there is no activity in the vicinity of least tern nesting colonies or populations of Koster's springsnails, Noel's amphipods, Roswell springsnails, and Pecos assimineas;
- Washing construction equipment before use to identify any leaks and to reduce the potential for introducing additional invasive species to the refuge;
- Briefing workers and implementing measures to stop work immediately and notify the Service archaeologist if archaeological resources or human remains are discovered or suspected during construction, restoration, or monitoring;
- Selectively revegetating disturbed areas with desirable species as funding and staffing permit; and
- Assessing and reducing noise impacts on wildlife, workers, and refuge visitors.

COORDINATION

All required consultations will be completed before each phase of the project begins.

Required consultations	Agency	Phase I	Phase II
Clean Water Act, Section 404 Permit	US Army Corps of Engineers	Complete	Complete
State Water Quality Certification under CWA, Section 401	New Mexico Environment Department, Surface Water Quality Bureau	Complete	Complete
Section 106, National Historic Preservation Act	New Mexico Office of Historic Preservation, Interested Tribes and Stakeholders	Complete	Complete
Section 7, Endangered Species Act	US Fish and Wildlife Service	Complete	Complete
National Pollutant Discharge Elimination System (NPDES) Permit and Storm Water Pollution Prevention Plan	Environmental Protection Agency	If needed, to be addressed before construction	If needed, to be addressed before construction

Agencies, government entities, and tribal groups contacted or contributing to the development of the restoration project or the EA or those consulted during its preparation include the following:

- US Bureau of Reclamation;
- US Army Corps of Engineers;
- US Fish and Wildlife Service, Bitter Lake National Wildlife Refuge;
- US Fish and Wildlife Service, New Mexico Ecological Services;
- US Fish and Wildlife Service, New Mexico Fishery Resources;
- New Mexico Department of Game and Fish;
- New Mexico Interstate Stream Commission;
- New Mexico State Historic Preservation Division;
- New Mexico Environment Department;
- Carlsbad Irrigation District;
- Chaves County;
- Chaves County Flood Control District;
- DeBaca County;
- Eddy County;
- Guadalupe County;
- Pecos Valley Artesian Conservancy District;
- Pueblo of Jemez;
- Kiowa Tribe of Oklahoma;
- Fort Sill Apache Tribe of Oklahoma;
- Apache Tribe of Oklahoma;
- Hopi Tribe;
- Navajo Nation;
- Jicarilla Apache Nation;
- Comanche Indian Tribe;
- Pueblo of Ysleta del Sur;
- Pueblo of Isleta; and
- Mescalero Apache Tribe.

CONCLUSION

In accordance with the National Environmental Policy Act of 1969 and based on the analysis in the EA, coordination with agencies, stakeholders and tribes, public comments, and environmental commitments, the Bureau of Reclamation and the US fish and Wildlife Service have determined that implementing the preferred plan presented in the EA for Pecos River Channel Restoration at the Bitter Lake National Wildlife Refuge, Chaves County, New Mexico, would not result in a significant impact on the human environment and does not require preparation of an environmental impact statement.