

Alternative Project Area: Other abandoned oxbows exist on Santo Domingo Tribal land; however, greater volumes of sediment would need to be removed in order to create the intended habitat conditions of the proposed actions.

There are no other natural occurring side channel habitats that are connected to perennial water flow on Santo Domingo Tribal land, thus, this project has no alternative to consider.

Phreatophyte Removal: Instead of extracting phreatophytes in the Galisteo Creek, a stump-cut prescription could be implemented, however, this method would take several additional weeks to complete, and require the use of large volumes of herbicide one tree were felled. Spraying the trees with an herbicide is an option, however, Tribal Council has deterred the use of aerial application herbicide in such close proximity to the community.

The options analyzed for phreatophyte control allow tree stumps to remain in place, which would continue to restrict sediment transport to the Rio Grande.

Chapter 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This section describes the current condition of resources in the project site that may be affected by the Proposed Action. Resources and related topics presented include geology and soils, hydrology, water resources and net depletions, noxious weeds, threatened and endangered species and special status species, cultural resources, Indian trust assets, socio-economic considerations, land use, and environmental justice.

The affected environment is within the Cochiti Reach of the Middle Rio Grande River. The Cochiti Reach extends from Cochiti Dam downstream to the Angostura Dam. This area has been identified by Reclamation and the ISC, as well as the Collaborative Program, as being a reach of the Rio Grande where habitat/ecosystem restoration projects would be highly beneficial to all life stages of the RGSM.

The US Fish and Wildlife Service and the Santo Domingo NRB have evaluated the No Action and the Proposed Action Alternatives. The USFWS was determined that no negative impacts would result from implementation of the Proposed Action.

3.2 Description of Relevant Affected Resources

3.2.1 Geology and soils

Historically, the shape and pattern of the Rio Grande channel have continuously redefined the spatial distribution of sediments throughout the floodplain.

However, in the twentieth and twenty-first centuries, floodway constriction and channel stabilization projects have altered the natural course of the river.

Sediment and fluvial geomorphology play an important role in describing the evolution of the Rio Grande and in influencing the spatial extent and species diversity of vegetation in riparian areas. The present day channel is composed of clay, silt, sand, and gravel, similar to the composition of ancestral river deposits. In addition, to the erosion and transportation of sediment through the main-stem channel, tributary streams can contribute large volumes of sediment to the system. The Galisteo Creek on Santo Domingo tribal lands historically flowed all year round and contributed sediment to the Rio Grande.

The soils on Santo Domingo are of alluvial origin, these soils are deep and well drained.

During construction of the backwater and side channel, care will be taken to minimize sediment erosion. Excavated material will be stockpiled at a designated site and transported to a community borrow pit and silt fencing will be installed when working near the bank of the river. With these mitigating measures, no impacts are anticipated due to the Proposed Action.

3.2.2 Hydrology

The Middle Rio Grande is the portion of the Rio Grande from the Colorado/New Mexico state line southward to the headwaters of Elephant Butte Reservoir, and includes the Rio Chama watershed. Most of the annual flow and discharge of the Rio Grande that reaches the MRG is generated in the headwaters of the river basin in Colorado and in the Rio Grande in northern New Mexico.

Most of the discharge volume of the Rio Grande is late spring snowmelt. Late summer monsoon events produce runoff and briefly alter the hydrograph of the river. These summer flows typically carry high sediment loads; however, the operation of Cochiti Dam since 1973 has greatly reduced the total supply of sediment throughout the Cochiti Reach. The water resources on Santo Domingo come from the local ground water and the surface flow of the Rio Grande used in irrigation. The portion of perennial flow of the Galisteo Creek on Santo Domingo tribal lands comes from a spring in the Galisteo Creek.

Under the Proposed Action, water will be returned via gravity flow to the Rio Grande in both the side channel and backwater projects. Water availability will increase in Galisteo Creek after removal of the phreatophytes and thus, increase flow return to the Rio Grande, which is a positive impact.

3.2.3 Water Resources and Water Balance

The Rio Grande Compact, in effect, limits the amount of surface water that can be depleted in the MRG based upon the natural flow of the river measured at the Otowi gage near Los Alamos. In addition, the New Mexico State Engineer has determined the MRG is fully appropriated.

Under the Proposed Action, there may be more water surface area created, which could potentially increase evaporation of water. The two bosque project areas are well shaded which will limit evaporation. Under the Proposed Action, non-native phreatophytes (saltcedar, Russian olive, and some Siberian elm) will be removed from approximately 5 acres. The amount of water lost to evaporation or the water gained by removing phreatophytes is indeterminable and it is unknown whether the Proposed Action will add water to or deplete water from the MRG system.

3.2.4 Noxious Weeds

The Federal Noxious Weed Act of 1974 (Public Law 93-269; U.S. C. 2801) provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce. Executive Order (EO) 13112 directs Federal agencies to prevent the introduction of invasive (exotic) species and provides for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

The State of New Mexico, under administration of the United States Department of Agriculture, designates and lists certain weed species as being noxious. "Noxious" in this context means plants not native to New Mexico that may have a negative impact on the economy or environment, and are targeted for management or control.

At the proposed action site, the area is infested with several classes of salt cedar and Russian olive predominantly. There are some Siberian elm trees scattered in the bosque as well.

Under the proposed action the impact will be positive as a result of the removal of noxious weeds to allow native vegetation to progress.

3.2.5 Threatened and Endangered Species and Species of Special Status

The agencies that have primary responsibility for the conservation of plants and animal species in New Mexico is the USFWS, under authority of the ESA; the NMDGF, under authority of the New Mexico Wildlife Conservation Act of 1974; and the New Mexico Energy, Minerals and Natural Resources Department, under authority of the New Mexico Endangered Plant Species Act.

Protection from harassment, harm, or destruction of habitat is granted to species protected under the ESA. The New Mexico Wildlife Conservation Act and New

Mexico Endangered Plant Species Act protect state-listed species by prohibiting taking without proper permits.

Three threatened and endangered species; the Rio Grande Silver Minnow, the Southwestern Willow Flycatcher, Bald Eagle, and the Yellow Billed Cuckoo (a USFWS candidate species) historically occurred on tribal lands. The USFWS offered a final determination in which the proposed action will have no short term or longterm negative affects to these species.

Rio Grande Silvery Minnow (*Hybognathus amarus*)

In 1994 the RGSM was classified as endangered by the USFWS (FR 1994a) and has been considered endangered at the state level since 1979. Historically, the RGSM was one of the most widespread and abundant fishes in New Mexico. The species has declined as a result of impacts from dewatering, habitat destruction from dams after dewatering, channelization and flow regulation for irrigation, diminished water quality, and competition/predation by non-native species. The species is endemic to New Mexico, where it historically occupied large rivers with shifting sand substrates. The RGSM currently occupies less than 10 percent of its historic range and is found only in the Rio Grande from Cochiti Reservoir downstream to Elephant Butte Reservoir.

Natural habitat for the RGSM includes stream margins, side channels, and off-channel pools where water velocities are lower than in the main river channel. Areas with detritus and algal-covered substrate are preferred. The lee sides of islands and debris piles often serve as good habitat. Stream reaches dominated by straight, narrow, or incised channels with rapid flows would not typically be occupied by the RGSM (Sublette et al. 1990; Bestgen and Platania 1991). Critical habitat for the RGSM was designated by the USFWS form Highway 22 Bridge downstream to the headwaters of Elephant Butte Reservoir. This designation became effective February 19, 2003 (USFWS 2003b). Santo Domingo Tribal lands were not included in the critical habitat designation.

No long-term adverse impacts to RGSM or habitat are anticipated to occur as a result of short term construction of new habitat or tree extraction. The anticipated long term benefits to the RGSM and its habitat resulting from habitat development far outweigh any potential negative impacts.

Southwestern Willow Flycatcher (*Empidonax trailii extimus*)

The southwestern willow flycatcher is considered endangered by both the USFWS and the state of New Mexico. The subspecies is restricted to dense riparian vegetation along select waterways in New Mexico. The decline of the species has been attributed to loss of riparian habitat, brood parasitism, and lack of adequate protective regulations.

The flycatcher is an obligate riparian species and nests in thickets associated with streams and other wetlands where dense growth of willow, Russian olive, salt cedar, or other shrubs are present. Dense riparian woodlands are particularly important as breeding habitat. In New Mexico, the flycatcher occupies riparian habitat along the Rio Grande, Chama, Zuni, San Francisco, and Gila rivers and is found within 150 feet of a water source. Nests are frequently associated with an overstory of scattered cottonwood.

Because the project site does not contain actual or potential habitat for the species, the Proposed Action will have no effect on breeding habitat and no direct effects to the species.

Bald Eagle (*Haliaeetus leucocephalus*)

The Bald Eagle is currently listed as threatened by the USFWS and the State of New Mexico. Bald eagles are associated with habitats near open water and commonly winter adjacent to rivers and lakes, or where carrion is available. The major food items of bald eagles in New Mexico are waterfowl, fish, and carrion (NMGFD 2004b). Bald eagles are uncommon during the summer and have limited breeding sites in New Mexico, though nests have been documented in the extreme northern and western portions of the state. The number of birds wintering in the state has been steadily increasing. Important wintering areas include the upper Rio Grande, but seldom the MRG (NMGFD 2004b).

Bald eagles frequent all major river systems in New Mexico from November through March including the Rio Chama and Rio Grande. Potential roost sites occur in the proposed project area, within the large cottonwood stands on Santo Domingo tribal lands. In addition, Cochiti Reservoir is just upstream of the project site and provides feeding areas for the bald eagle.

The Proposed Action may have short-term minor potential effects to wintering bald eagles during construction, related to temporary noise and other disruptions. During construction of the habitats, if a bald eagle is spotted within 0.25 mile of active project construction, prior to starting, construction activities will be delayed until the eagle leaves the area on its own accord.

Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

The yellow-billed cuckoo is a USFWS candidate species that occurs locally along riparian corridors throughout New Mexico. Ideal habitat appears to be dominated by cottonwood canopy with a well developed understory. In New Mexico, historical accounts indicate that the cuckoo was locally very common along the Rio Grande, but rare statewide (NMGFD 2004). Both Hink and Ohmart (1984) and Stahlecker and Cox (1997) reported yellow-billed cuckoo as a nesting bird in

the bosque of the MRG. During southwestern willow flycatcher surveys in 2005, the surveys team heard a yellow-billed cuckoo but did not see it. The yellow-billed cuckoo apparently frequents Santo Domingo's riparian bosque.

The relatively limited amount of potential cuckoo habitat to be removed combined with the mitigation planting ratios that will occur under the Proposed Action may result in minor positive impacts to the yellow-billed cuckoo.

3.2.6 Cultural Resources and Traditional Cultural Properties

Cultural Resources include archeological sites, sites eligible for the State Register of Cultural Properties and/or the National Register of Historic Places (NRHP), and properties of traditional religious or cultural importance (Traditional Cultural Properties [TCP's]).

No cultural resources have been identified in the Area of Impact (AOI) of the Proposed Action. In addition, no TCPs or sacred sites were identified in the AOI. The probability of any artifacts that might have once existed in the floodplain of the Rio Grande have a very low probability of still being present (J. Hanson, pers communication). This is due to the nature of the meandering of the Rio Grande and habitat modifications being disrupted by man.

To address potential impacts to cultural resources due to the construction and extracting practices, Reclamation has submitted a letter to SHPO describing the existing conditions of the project areas. The SHPO concurred that no historic properties were affected.

Therefore, no impact to cultural resources or TCPs is anticipated due to the Propose Action.

3.2.7 Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in assets held in trust by the United States Government for Indian tribes or for Indian individuals. Some examples of ITAs are lands, minerals, water rights, hunting and fishing rights, titles, and money. ITAs cannot be sold, leased, or alienated without the express approval of the United States government. The United States has a trust responsibility to protect and maintain rights reserved by or granted to Indian tribes or individuals by treaties, statues, Executive Orders, and rights further interpreted by the courts. This trust responsibility requires that all Federal agencies take all actions reasonably necessary to protect such trust assets.

Since no ITAs that could potentially be affected have been identified, no impacts due to the Proposed Action would result.

3.2.8 Socioeconomic Considerations

Socioeconomic resources include population and economic activity. Some related secondary components, such as housing availability and public services, are not considered in this analysis because the action has no potential to generate measurable changes in population that will create demand for these resources.

The current estimated population of Santo Domingo is 4,439. The community consists of a church, post office, schools, small businesses, and the main tribal government center. There are approximately 500 individual homes in Santo Domingo. The main local businesses are jewelry making and pottery. The majority of community members are employed off the reservation. The proposed action will employ a small number of community members as technicians or laborers. This Proposed Action will not have a material impact on the overall economy of Sandoval County or the Santo Domingo Tribal economy. Short term positive economic impacts to the Santo Domingo Community will be observed through temporary employment of sawyers and laborers while construction occurs. The proposed project will have no adverse impacts to the economy of Sandoval County.

3.2.9 Land Use

The current land uses on Santo Domingo are livestock grazing and agriculture.

The Proposed Action will have no effect on current uses of water for agriculture, ranching, residential, or other activities in the area. The Proposed Action will not affect adjacent agricultural land use and will not change current land status or uses.

3.2.10 Environmental Justice

The planning and decision-making process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations, including EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations", which was issued by President Clinton on February 11, 1994. The essential purpose of EO 12898 is to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

The Proposed Action will be constructed entirely on lands of the Santo Domingo Tribe, a minority population. However, there are no anticipated environmental effects that would be adverse to tribal members. The Proposed Action will

provide a few employment opportunities to tribal members, providing a small positive benefit to the Tribe.

3.2.11 Irretrievable Commitment of Resources of the Proposed Action

The implementation of the Project will result in the commitment of resources such as fossil fuels, construction materials, and labor. In addition Federal funds will be expended for the construction of the proposed project.

3.2.12 Cumulative Impacts

The Proposed Action will have a net positive benefit to RGSM in the Cochiti reach because of the enhanced habitat availability. Future restoration projects on Santo Domingo will cumulate to increasing habitat for threatened and endangered species while increasing overall biodiversity on Santo Domingo tribal lands. Restoration efforts from neighboring tribes and pueblos will also benefit from this project because of increased habitat connectivity for the RGSM. Overall cumulative impacts from these projects will benefit the overall recovery efforts of the RGSM in the Cochiti reach of the Middle Rio Grande.

Chapter 4. ENVIRONMENTAL COMMITMENTS

All applicable permits have been obtained prior to implementation of the project, including but not limited to:

- Section 7 of the ESA as administered by the USFWS
- Section 106 of the National Historic Preservation Act (NHPA) as administered by the New Mexico State Historical Preservation Office (SHPO)
- Should a bald eagle be observed within 0.25 mile, upstream or downstream of the active project site in the morning before project construction activity starts, or Following breaks in project construction activity, the construction crew would be required to suspend all activity until the bird leave on its own volition, or if the Tribal biologist in consultation with the USFWS, determine that the potential for harassment is minimal. However, if a bald eagle arrives during project construction activities or if a bald eagle is observed beyond the specified distance, construction would not need to be interrupted. If bald eagles are found consistently in the immediate action area during project construction, Santo Domingo would contact the USFWS to determine whether formal consultation under ESA is necessary.
- Avoiding impacts to birds protected by the Migratory Bird Treaty Act by scheduling construction outside of the normal bird breeding and nesting season (April 15 through August 15) for most avian species or conducting preconstruction breeding surveys and monitoring if construction were to occur