RECLAMATION
Managing Water in the West

BRANTLEY PROJECT MITIGATION – KARR FARM LAND AND WATER TRANSFER PROJECT

BIOLOGICAL ASSESSMENT FOR THE KARR FARM LAND AND WATER TRANSFER

U. S. Department of the Interior
Bureau of Reclamation
Albuquerque Area Office
Environment Division
Albuquerque, New Mexico

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Front Cover Photo Caption – Sandhill Cranes at Karr Farm, Winter 2013. Photo taken by S. Cordova, New Mexico Department of Game and Fish.

CHAPTER 1.0 INTRODUCTION

This Biological Assessment (BA) considers the effect of the Karr Farm Land and Water Transfer on species and critical habitat listed under the Endangered Species Act (ESA) within the Brantley Project in Eddy County, New Mexico.

1.1 BACKGROUND AND PROJECT HISTORY

Brantley Reservoir Project planning began in 1959. On October 20, 1972, Congress enacted the Brantley Project through Public Law 92-514. The Brantley Dam was designed to replace McMillan Dam, which had been declared unsafe. Brantley Dam was built five and a half miles downstream from McMillan Dam and adjacent to Highway 285, about 15 miles north of Carlsbad, New Mexico.

Though McMillan and Avalon Dams, to some degree, regulated floods on the Pecos River above Carlsbad, NM, they offered no substantial space for flood control. When each of the reservoirs was full of water, they offered little protection to the City of Carlsbad during flooding events. Also, due to sediment buildup in McMillan Reservoir, the reservoir was able to store less water over time. Brantley Dam would offer additional flood space protection for flood inflows captured by the reservoir.

The U. S. Fish and Wildlife Service (Service) opined that the proposed Brantley Project would "not jeopardize the continued existence of listed species nor adversely modify or destroy habitat critical to the survival of any listed species." Neither the Interior Least Tern (*Sterna antillarum athalassos*), (tern), nor the Pecos bluntnose shiner (*Notropis simus pecosensis*), (shiner), was a federally listed species during the time Brantley Dam was being built. A base plan to mitigate for the loss of wildlife habitat that would be caused by the construction of Brantley Dam and the subsequent abandonment of Lake McMillan, originated in late 1970 between Reclamation and the New Mexico Department of Game and Fish's (NMDGF). Between 1984 and 1987, Reclamation acquired about 2,148 acres of land (Karr Farm) and associated water rights east and adjacent to the NMDGF's, William S. Huey Wildlife Refuge to be developed as a waterfowl mitigation area for the Brantley Project. In addition, the Bureau of Land Management (BLM) acquired 640 acres of State of New Mexico (State) land for wildlife management purposes through a land exchange with the State in 1985. This BLM acreage was merged into the Karr Farm holdings bringing the total federal holdings for Karr Farm to about 7,788. A full disclosure of the project history is described in the Karr Farm Land and Water Transfer Environmental Assessment, dated 2013.

In 1985, the NMDGF started its farming operation on the Karr Farm; however, it was realized later that the land purchased would not sustain good crops. In fact, the water and soils at Karr Farm were so saline that crop yields were diminishing year-to-year. Due to the ongoing issues, it was determined ultimately by the NMDGF and Reclamation that the farming operation needed to be relocated. After extensive soil and water testing throughout the Pecos Valley by Reclamation, it was determined that the farming effort should be moved to Seven Rivers Farm, north of Carlsbad, NM. The Seven Rivers land had been previously farmed and was purchased by the federal government as part of the Brantley Reservoir conservation pool area. In 1989, Reclamation consulted with the Service on the proposal to move the operation to Seven Rivers,

adjacent to the north side of Brantley Reservoir. Instead, the Service asked Reclamation and NMDGF to explore some different management and farming practices at the Karr Farm, but by 1991, the Service agreed that further farming should not be continued at the Karr Farm.

In July 1994, Reclamation and the NMDGF signed a new lease agreement to administer, develop, operate, and maintain the Seven Rivers and Karr Farms areas. From 1994 to 2010, Reclamation and the NMDGF operated under a 50:50 cost share agreement. In 2010, the NMDGF could no longer maintain their portion of the cost share. Legal review by Reclamation revealed that the authority for the previous lease agreement was inappropriate and could not be used to extend or create a new agreement. In 2011, Reclamation renewed its original effort to fulfill Brantley Project wildlife mitigation commitments by considering the transfer of some or all mitigation land, water rights, and other resources to the NMDGF under the authority of the Fish and Wildlife Coordination Act.

1.2 DESCRIPTION OF THE ACTION AREA

The Action Area is defined as all areas to be affected directly and indirectly by the proposed federal action and not merely the immediate area or project area involved in an action (50 CFR § 17.11). The Action Area is the 2,787.5 acres proposed for transfer to NMDGF. These acres are northeast of Artesia, New Mexico, four miles to the north of US Highway 82 on NM229 (Halderman Road). The land is bounded by Halderman Road to the west and County Road 200 (Karr Ranch Road) to the east and unmarked/unpaved roads immediately to the south and north. A segment of the Pecos River flows through these lands, but Reclamation does not own the bed

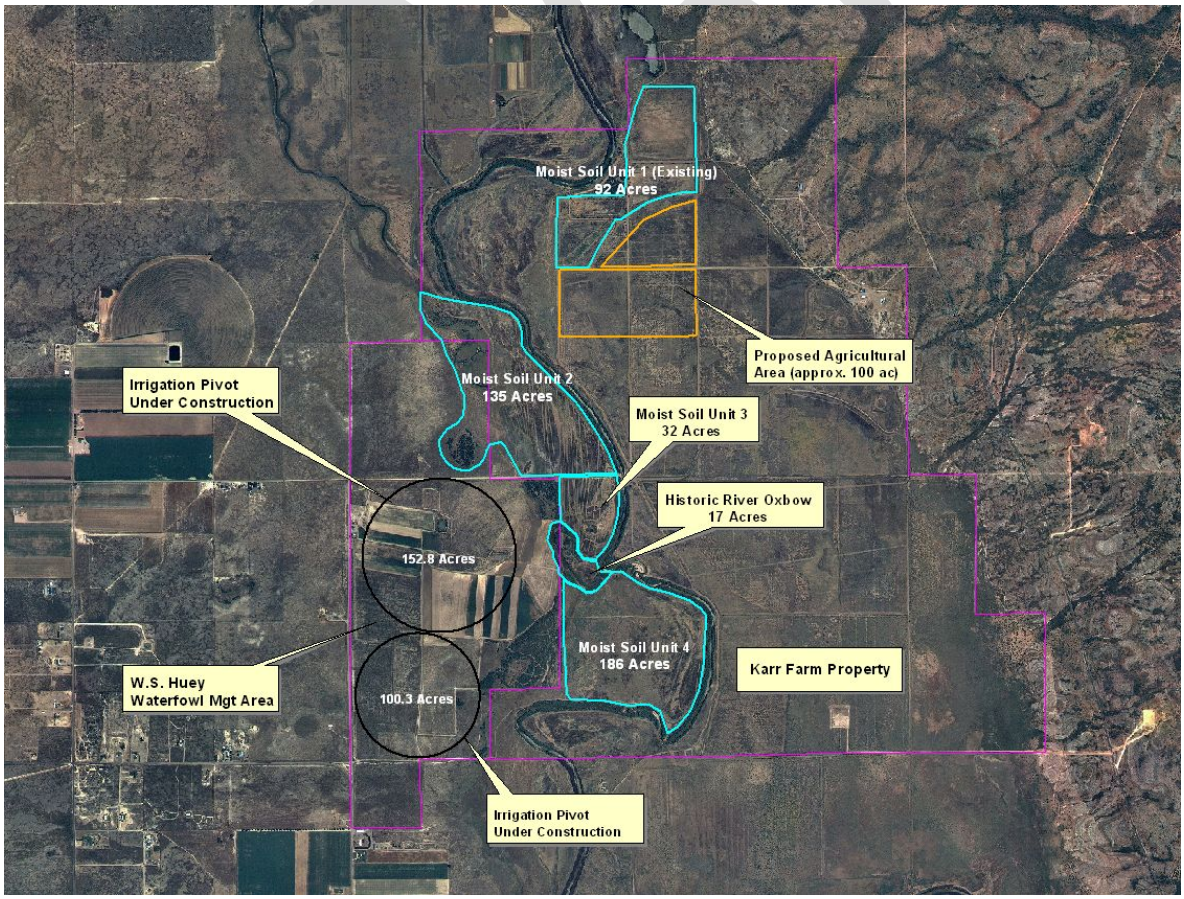

Figure 1 - W.S. Huey Waterfowl Management Area and Karr Farms showing current and proposed management actions

or bank of the river and therefore, the river is not part of the proposed transfer. However, under the ESA the Action Area is defined based on the geographic extent of impacts resulting from the proposed action, and includes area affected by interrelated and interdependent activities, including chemical, physical, or biological direct or indirect effects. Because there could be runoff from the NMDGF's farming activities that could enter into the waters of the Pecos River, it is included in the Action Area for this BA.

1.3 SUMMARY OF PREVIOUS CONSULTATION ACTIVITIES

The original planning for this project started in 1959, between Reclamation and the NMDGF. By 1962, the State Game Commission purchased 640 acres of land northeast of Artesia, NM, which would become the original waterfowl management area, later named the W.S. Huey Waterfowl Management Area. In 1970, the Brantley Project mitigation plan had been developed.

Congress authorized the Brantley Dam and Reservoir on October 20, 1972, by public Law 92-514, to replace the depleted capacity of McMillan Reservoir and provide flood control, fish and wildlife, and recreational benefits.

After the Final Supplement to the Final Environmental Impact Statement and the Definite Plan Reports for the Brantley Project, Eddy County, New Mexico, were signed in 1982, Reclamation consulted with the Service pursuant to requirements of the Fish and Wildlife Coordination Act of August 14, 1946, as amended (16 USC 661-667e). The Service recommended and Reclamation agreed to make available to the NMDGF certain lands and waters which could be used to enhance waterfowl and wildlife values.

Through a series of purchases between 1984 and 1987, Reclamation obtained the lands (Karr Farm) for development of the fish and wildlife mitigated lands. Karr Farm was specifically purchased due to its proximity to the NMDGF's W.S. Huey property; it is located directly east of the State property and the two properties together form a contiguous parcel which further benefits wildlife in the area. In 1985, NMDGF started its farming operation.

Work on the dam would start in 1984 and was completed in 1989. That same year, Reclamation would conduct a "Safety of Dams" test, sending down nearly all of the water held in the upper two Reservoirs (Santa Rosa and Sumner). Only two years before, on February 20, 1987, the Service had published its final rule, listing the shiner and its critical habitat (USFWS, 1987). Shiner numbers had dwindled in the years leading up to its listing. In 1989, extensive drying occurred on the Pecos River affecting the shiner and its critical habitat.

Reclamation again consulted with the Service in 1990, and on August 5, 1991, the Service issued a Jeopardy Opinion (USFWS, 1991) by which Reclamation would implement a five-year study of the hydrology of the river and biology of the shiner. Reclamation was given a two year extension for the study and after the completion of the study in 1997, Reclamation prepared several Biological Assessments. After several years of individual consultations, Reclamation agreed to prepare a Biological Assessment to establish long-term operation on the Pecos River.

In May 2006, Reclamation submitted its Biological Assessment for the Proposed Carlsbad Project Water Operations and Water Supply Conservation, 2006-2016 (Bureau of Reclamation, 2006). In July 2006, the Service returned a Biological Opinion (USFWS, 2006), of a "…not likely to adversely affect" determination for the shiner and the tern.

By 2010, Reclamation proposed to complete the transfer of the wildlife/waterfowl mitigation lands to the NMDGF. This is the proposed action.

Chapter 2.0 THE PROPOSED ACTION

Reclamation proposes to transfer the aforementioned about 2,788 acres that had originally been acquired to fulfill its obligations as a waterfowl mitigation area, known as Karr Farm, and the associated groundwater rights, to the NMDGF. The 2,788 acres are Reclamation fee-title acquired land and the associated groundwater rights would be transferred out of federal ownership and added to the State's W. S. Huey Waterfowl Management Area.

2.1 PURPOSE AND NEED FOR ACTION

The proposed action's purpose is to finalize mitigation commitments Reclamation made within the Record of Decisions for the Final Environmental Impact Statement for the Brantley Project (Reclamation, 1972), Final Supplement to the Environmental Impact Statement (Reclamation, 1982) for the Brantley Project, as well as in the original W. S. Huey Waterfowl Management Plan (1986), Brantley Wildlife Area Management Plan (1987), and an updated 2011 Waterfowl Management Plan.

Reclamation's proposed action is necessary at this time for several reasons. In June 2010, the cost share agreement between the agencies ended due to the State's budget crisis and inability to continue cost sharing with Reclamation. With decreasing federal budgets, it also became apparent that Reclamation could not pay the entire operation and maintenance (O&M) costs associated with the waterfowl mitigation lands. Second, Reclamation reviewed the history of this particular mitigation commitment, as well as comparable commitments made for other water projects within the Upper Colorado Region, and discovered that in all other cases, Reclamation acquired fish and wildlife habitat and transferred the lands to either the Service or to state fish and wildlife departments. In no other case was wildlife mitigation lands retained by Reclamation. Therefore, Reclamation determined that it should follow the precedent set by these other projects, and transfer the land, water rights and equipment to the NMDGF. This transfer would not only allow the NMDGF greater flexibility in managing the state's waterfowl and wildlife resources but allow the NMDGF, as a state agency, to obtain and utilize federal funding on state owned land. The NMDGF has been excluded from obtaining federal grant money (Pitman-Robertson Act), since it cannot be utilized on federal lands to benefit a federal agency such as Reclamation.

2.2 Interrelated and Interdependent Actions

In the regulations implementing the ESA (50 CFR 402.02), interrelated actions are defined as being part of the larger action and they depend on it for their justification. Interdependent actions

have no independent utility apart for the proposed action and are typically proposed because of the proposal.

In this case, the NMDGF's "Karr Farm Waterfowl Management Area Conceptual Management Plan" (NMDGF 2011) and the "Lower Pecos River Waterfowl and Wildlife Areas Management Plan for the Brantley Project Mitigation Lands 2005-2010, Exhibit C" (NMDGF 2005) describe the objectives, approaches, and expected benefits to wildlife that would occur following the transfer (See attached). NMDGF Management Plans are considered interrelated and interdependent actions with Reclamation's land and water transfer.

CHAPTER 3.0 LISTED SPECIES AND CRITICAL HABITAT POTENTIALLY AFFECTED BY THE PROPOSED ACTION – ENVIRONMENTAL BASELINE

3.1 – PECOS BLUNTNOSE SHINER

The shiner was federally-listed as a threatened species under the ESA on February 20, 1987, by the Service (USFWS, 1987). The shiner is endemic to the Pecos River and is presently found only in eastern New Mexico.

3.1.1 – BACKGROUND

The shiner, *N. simus*, was first collected by Cope and Yarrow, at San Ildefonso, Santa Fe County, New Mexico in 1876 (Sublette et. al., 1990). Confusion regarding taxonomic status of *N. simus* was resolved when Chernoff et al. (1982) determined that two subspecies occurred: the Rio Grande form (*N. simus simus*) and Pecos form (*N. simus pecosensis*).

The Rio Grande form was historically found in the Rio Grande drainage from the Chama River, north of Santa Fe, New Mexico, downstream in the Rio Grande to El Paso, Texas. The Rio Grande form is now extinct (Bestgen and Platania, 1990; Sublette et. al., 1990). The Final Rule determining the shiner as threatened indicates historic occupation of the shiner in the Pecos River between the towns of Santa Rosa and Carlsbad, New Mexico (USFWS, 1987). Collections of shiner during 1990's indicate a current range from Sumner Dam, New Mexico, downstream to Brantley Reservoir (Brooks et al., 1991; USFWS, 2001). The Service reported that "Some stretches of the Pecos River…" were "…frequently dry downstream from impoundments." (50 CFR § part 17).

Reclamation committed to keeping a continuous flow in the Pecos River between Sumner Dam and Brantley Reservoir through the Biological Opinion (BO) for the Bureau of Reclamation's Proposed Carlsbad Project Water Operations and Water Supply Conservation, 2006-2016, (Cons. # 22420- 2006-F-0096). The Service established a "Take Schedule" for the shiner through 2016, which considered a two-year running average of density of shiners per 100 m². Reclamation maintained a continuous flow in the Pecos River from 2005 to August 5, 2011, and based on the two year running average, well exceeded the values of that schedule each year since 2006. During the summer of 2012, even with the highest volume of supplemental water released during the term of the 2006 BO, drying occurred for 77 days and 54 miles. Similar amount of drying is anticipated to occur in the future. To address the increased incidental take of the shiner and

adverse modification of its designated critical habitat (upper reach), Reclamation has requested reinitiation of ESA, Section 7, consultation to incorporate an amended Proposed Action and Conservation Measure through 2016, the final year of the 2006 BO.

3.1.2 – DESCRIPTION OF THE SPECIES

The shiner is a member of the minnow family (Cyprinidae). It is relatively small, reaching lengths of up to 3.5 inches. Sublette et.al., (1990) described the shiner as having a spindle shaped body, with a silvery head, back, and abdomen; sparsely scattered with small melanophores along the head and sides. The mouth is large, appearing slightly subterminal with an overhanging blunt nose. Males and females look very similar, except in the breeding season when the female's abdomen becomes distended with eggs and the males develop fine tubercles (bumps) on the head and pectoral fin rays. The shiner primarily feeds on detritus, filamentous algae, and terrestrial invertebrates, such as Diptera, a large order of flies and midges. Its average life span is two to three years.

3.1.3 – DISTRIBUTION AND ABUNDANCE

Historically, shiners ranged throughout the upper portion of the Pecos River in New Mexico from about the Gallinas Creek confluence, above Santa Rosa, to near the New Mexico-Texas border (USFWS, 2000). Their present range is listed as being from Sumner Dam to Brantley Reservoir, a distance of approximately 225 river miles; a 25 percent reduction from the historical range. However, the shiner may now be extirpated from the 14 mile section between Sumner Dam and the FSID Diversion Dam, (Platania and Altenbach, 1998). Brooks et al. (1991) reviewed historic and recent surveys of fish communities in the Pecos River. These surveys included collections from Sumner Dam downstream to the Brantley Reservoir inflow. Intensive surveys and monitoring by the Service from 1992 through 2004 form the basis for current knowledge of shiner distribution and abundance.

The NMDGF (1982) reported that there was a substantial decline in the abundance of shiners from 1939 to 1986 (NMDGF, 1982). Collections between 1986 and 1990 indicate a further decline in abundance and a reduction in range, although the species still exists within the designated critical habitat reaches (Brooks et al., 1991). Non-native species, including the plains minnow (*Hybognathus placitus*) and the Arkansas River shiner (*N. girardi*) (Sublette et. al., 1990), comprised a large portion of the shiner guild.

Shiner adults and larvae have been seen in the area of the Kaiser Channel above the Brantley inlet, but have little hope of survival when they reach the reservoir. The Service anticipated that shiner eggs and larvae were taken as a result of block releases during the spawning season. The block releases were likely to transport the eggs and larvae downstream into Brantley Reservoir where death would occur, or where they would be unable to successfully develop and breed and thereby contribute offspring to the next generation. It was anticipated that killing of larvae and eggs would 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.

3.1.4 – CRITICAL HABITAT

Critical habitat for the shiner was designated to include two sections of the Pecos River. The upper end of the reach starts about two-thirds of a mile upstream from the Taiban Creek confluence and extends approximately 64 river miles downstream to the Crockett Draw confluence. The upper critical habitat reach is not within the Action Area; however, the bottom three miles of the lower critical habitat reach is within the Action Area. The lower critical habitat reach starts at a point due East of Hagerman, New Mexico and extends 37 river miles downstream to the Highway 82 Bridge, East Artesia, New Mexico (USFWS, 1987). Unlike the upper reach, the lower reach is largely dependent upon irrigation return flows and base inflows for much of its water supply.

3.2 – INTERIOR LEAST TERNS

The tern was federally listed as endangered June 27, 1985 (USFWS 1985).

3.2.1 – BACKGROUND

The Tern was federally-listed in the states of Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana (in the Mississippi River and its tributaries north of Baton Rouge), Mississippi (Mississippi River), Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Tennessee, and Texas (except within 80 km of the Gulf Coast) (USFWS 1985). Many subpopulations existed across these areas, but continued loss and degradation of its habitat led to low numbers within its range.

The tern is state-listed as endangered in South Dakota, Iowa, Illinois, Missouri, Texas, Kansas, and Nebraska and is extirpated in Indiana. It is also listed as endangered by the NMDGF (2006). Severe declines of tern populations were due to habitat loss from river channelization, dam construction, and regulated flows.

3.2.2 – DESCRIPTION OF THE SPECIES

The tern is the smallest member of the tern subfamily (Sternidae), measuring about 21 to 24 cm in length with a 51 cm wingspan. Sexes are alike with a characteristic blackcapped crown and white forehead. The back and dorsal wing surface are grayish, with white breast, belly and underwings. Legs are shades of orange or yellow and the bill, which is black tipped, also varies from yellow to yellow-orange in color. Immature terns have darker plumage than adults, a dark bill, and dark eye stripe. The validity of the taxonomy of the tern subspecies has been questioned and identification in the field is difficult, therefore the Service designated as endangered those terns occurring in interior North America.

3.2.3 – DISTRIBUTION AND ABUNDANCE

New Mexico is located on the extreme southern and western periphery of the tern historic range. Terns were first recorded breeding in New Mexico at Bitter Lake NWR (BLNWR), Chaves County, in 1949, (Jungleman, 1988).

BLNWR was established adjacent to the Pecos River in 1939. Terns have bred annually at or in the vicinity of BLNWR since 1949 in low and relatively constant numbers. Since 1989, there have been three to seven pairs nesting and as many as five chicks fledged in any given year. Terns were also known to summer in the vicinity of Dexter National Fish Hatchery in 1996 and two pairs were detected north of BLNWR along the Pecos in 1997.

In 2005, a rangewide survey of terns was completed, and the Rio Grande/Pecos River systems collectively made up 0.8% of the population (Lott 2006). Historically, tern nesting has been confirmed on six reservoirs along the Rio Grande/Pecos reach at Bitter Lake NWR, Brantley Lake, and Imperial Reservoir on the Pecos; and Lake Casa Blanca, Amistad Reservoir, and Falcon Reservoir on the Rio Grande in Texas (Lott 2006) (figure 1).

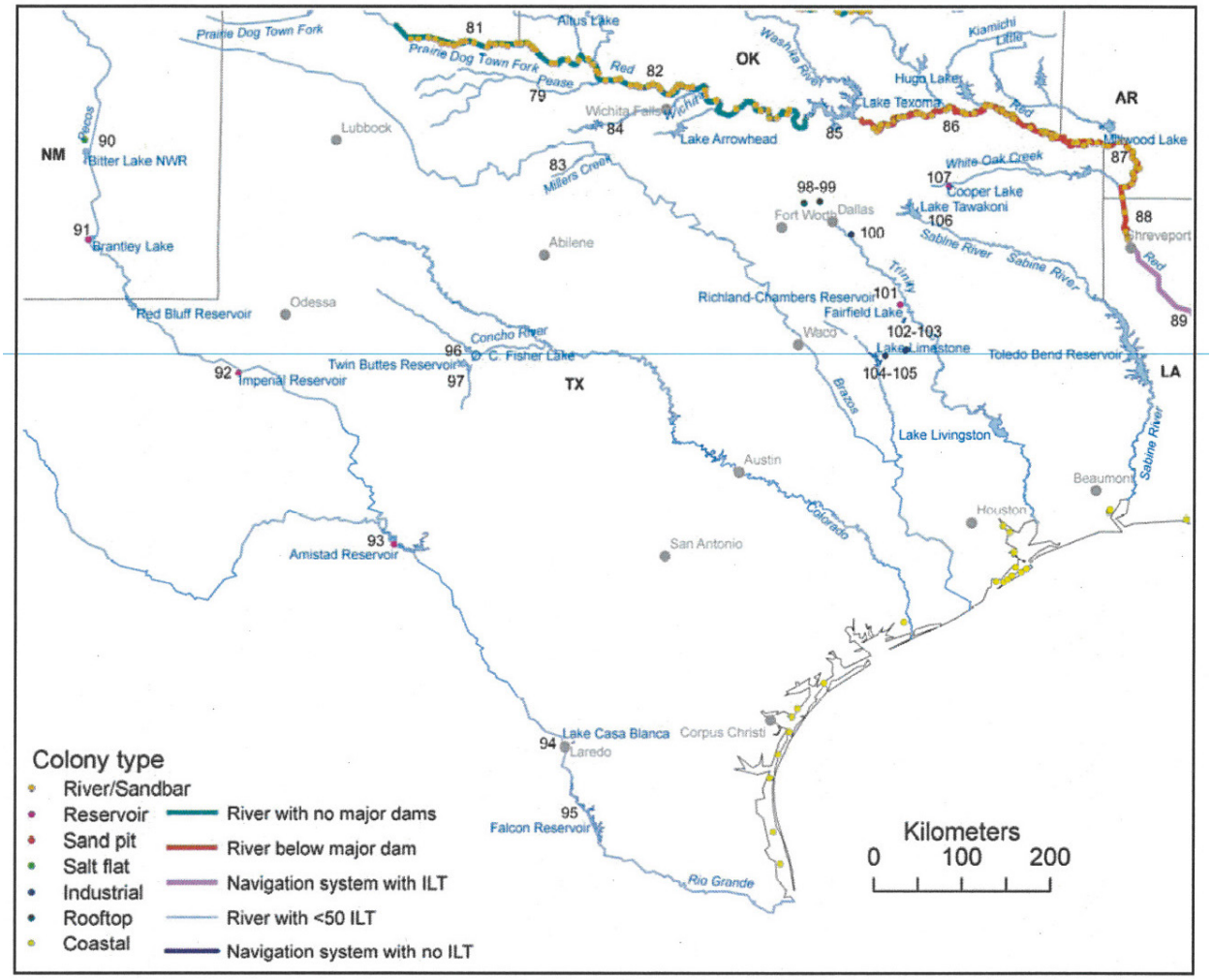

Figure 1. Distribution of the 2005 Interior Least Terns (ILT in figure) breeding colonies within New Mexico and Texas (Lott 2006).

After saltcedar was cleared from Brantley Lakes' northwest shoreline in early 2004, high water levels during spring kept this freshly-disturbed ground covered and free of new plant growth

(Montgomery 2004). As water levels receded in May, large expanses of drying mudflats were exposed which provided ideal nesting habitat, attracting terns migrating north through the Pecos River valley. Conflicting reports make an estimation of pairs and nests difficult for the 2004 season. The number of pairs ranged from 7 to 11, and either 6 or 7 nests were documented (Moore and Ahlers 2012). Not since 2004 have this many pairs and nests been documented, and this was the first and last time nesting activity is thought to be successful at Brantley Lake.

Monitoring at Brantley Lake has been completed during the breeding season annually since the initial detection in 2004. Below is a summary of the survey and nest monitoring effort from 2004-2012.

Year	Est. Pairs	Nests*	Successful nests
2004	7[2] to 11[1]	6[1] or 7[2]	2
2005	1[3] to 9[2]	0	0
2006	6	2	0
2007	0	0	0
2008	5	4	0
2009	1	0	0
2010	3	3	0
2011	2	1	0
2012	0	0	0

*Only nests containing eggs were considered active. Empty scrapes were not tallied in the total

[1]Montgomery 2004, [2]Doster 2006, [3]Montgomery 2005

3.2.4 – LIFE REQUIREMENTS

Terns are piscivorous and are associated with shallow water areas of rivers, streams and lakes. Generally they feed close to their nesting areas and forage by hovering and diving for fish over standing or flowing water. They are believed to be opportunistic feeders, exploiting any fish species within a certain size range.

Terns spend about four to five months at their breeding sites, arriving from late April to early June. Courtship behavior occurs in the general vicinity of the nest site and involves fish presentations, nest scraping, copulation and a variety of vocalizations. Nests are a shallow and inconspicuous depression in an open sandy area, gravelly patch or exposed flat. Terns generally

nest in colonies; however, colonial nesting is not always the case at BLNWR with single pairs nesting up to 3.5 miles from the next closest nesting terns.

3.2.5 – REPRODUCTION

Terns are migratory and breed along the Red, Missouri, Arkansas, Mississippi, Ohio, and lower Rio Grande river systems. Terns breed on sand bars in rivers and lake or pond edges free of vegetation.

Terns lay 2 to 3 eggs beginning in late May with incubation lasting approximately 20 to 25 days. Tern chicks are semi-precocial and gradually wander away from the nesting territory as they mature. Fledging occurs at about 3 weeks with parental attention continuing until migration.

3.2.6 – CRITICAL HABITAT

There is no designated critical habitat for the tern.

Chapter 4.0 ANALYSES OF THE EFFECTS OF THE PROPOSED ACTION

"Analysis of the Effects of the proposed action" refers to the direct and indirect effects of a proposed action on listed species or critical habitat together with the effects of other activities that are interrelated or interdependent with that action. Direct effects include all immediate impacts, both adverse and beneficial, from a proposed project. In this case, the direct effects are those caused by Reclamation transferring title to the state. These effects are de minimis from the perspective of listed species or habitat because there would be no direct change in how the land or water is managed—given that the NMGFD has been managing these lands and waters for decades.

Indirect effects are those caused that would occur later in time, but are still reasonably certain to occur and are caused by the action. Examples are typically changes in predator-prey relationships or long-term habitat changes. In this case, the state's proposed changes in management are considered indirect effects of the transfer. Again, the only anticipated indirect effects are possible changes in runoff to the Pecos as the state changes its surface management practices.

4.1 – PECOS BLUNTNOSE SHINER

4.1.1 - Direct Effects on the Shiner

Of the fish listed in the Service's "Listed and Sensitive Species in Eddy County," only the shiner and its critical habitat exist in the Action Area. The action of the title transfer would have no direct effect on the shiner or its habitat. Take for shiners has already been assessed and described in the 2006 BO. The title transfer will also not affect water operations and water supply conservation, as described within the 2006 BO and therefore, will not change any determinations made by the Service therein.

4.1.2 - Indirect Effects on the Shiner

The NMDGF's "Karr Farm Waterfowl Management Area Conceptual Management Plan" and the "Lower Pecos River Waterfowl and Wildlife Areas Management Plan for the Brantley Project Mitigation Lands 2005-2010, Exhibit C," primarily describe the objectives, approaches, and expected benefits of upland game and waterfowl management within the proposed transfer area. None of these proposed activities take place in the active channel of the Pecos River, so there would be no effect on the shiner or its critical habitat.

The construction, operation, and/or maintenance of the NMDGF's activities of the upland game and waterfowl management that are associated with this title transfer and that occur following the proposed title transfer are considered indirect effects of the action. Ponds that occur within the proposed area are upland impounded ponds fed by groundwater and do not contain any fish species. These ponds are created strictly for waterfowl and shore birds. The NMDGF's farming activities associated with the aforementioned management plans have the potential to affect runoff into the waters of the Pecos River; however transferred lands adjacent to the river serve as a buffer between the refuge's farmed lands and the river, therefore these effects would be minimal and likely insignificant. In the transfer of the Karr Farm lands, the associated groundwater will be transferred to NMDGF; however, this is not a change in operation because the water has been used for farming purposes for decades.

Indirect effects (including interrelated and interdependent activities of the state) are NMDGF activities, such as reactivation of oxbows or creation of backwater habitats for the shiner as may be identified in the future through NMDGF's "Karr Farm Waterfowl Management Area Conceptual Management Plan" or through a cooperative effort by NMDGF and Reclamation. The banks of the Pecos River are highly incised throughout the lands to be transferred and at present, there are no plans at this time to develop shiner habitat or affect, modify, or change their critical habitat at the Karr Farm.

EFFECT ON PECOS BLUNTNOSE SHINER

The direct effects listed above would have no effect on the shiner. The indirect effects would likely result in an overall benefit to the shiner, if implemented.

4.2 – INTERIOR LEAST TERNS

4.2.2 - Direct Effects on Terns

At present, there have not been any documented tern sightings at the Karr Farm, nor has there been any habitat established for the terns. There is no suitable tern habitat in the Action Area. The river banks are steep and incised, with dense, unsuitable vegetation almost to the water's edge and in some cases, the vegetation hangs out over the water. Thus, the land and groundwater transfer has no direct effect on terns.

4.2.2 - Indirect Effects on Terns

There have been no plans established outlining the development of tern habitat, thus no indirect effects have been identified which might be potentially affected by the transfer of the land. Habitat could be incorporated into NMDGF's "Karr Farm Waterfowl Management Area Conceptual Management Plan" and created, should terns be found present within the Action Area in the future.

Chapter 5.0 DETERMINATIONS OF EFFECTS

The following determination of effects for the shiner and the tern were considered based on the direct and indirect effects of the proposed action of transferring title to land and groundwater from Reclamation to NMDGF. Analyses considering the potential effect of other activities that may be interrelated or interdependent with the action were also taken into account.

5.1 – PECOS BLUNTNOSE SHINER

The shiner presently exists throughout the Pecos River within the area of the land transfer, along with designated critical habitat. No diversions from the river will occur. It is Reclamation's determination that the proposed action to transfer land and groundwater to the NMDGF, may effect, but is not likely to adversely affect, the shiner and could benefit the shiner and its critical habitat in the future if habitat restoration is implemented.

5.2 – INTERIOR LEAST TERNS

The tern does not presently exist within the area of the land transfer nor is there designated critical habitat for the tern within this area. It is Reclamation's determination that the proposed action to transfer land and groundwater to the NMDGF will have no effect on the tern.

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