

APPENDIX 6

RECLAMATION AND CORPS COMPLETED CONSULTATIONS

10.0 Bureau of Reclamation's Water and River Maintenance Operations, U.S. Army Corps of Engineers' Flood Control Operation, and Related Non-Federal Actions on the Middle Rio Grande

On February 19, 2003, a biological assessment (BA) was submitted to the U.S. Fish and Wildlife Service (Service) requesting formal consultation pursuant to Section 7 of the Endangered Species Act (ESA) for the proposed actions associated with water operations, river maintenance, and flood control on the Middle Rio Grande (MRG). The BA and subsequent biological opinion (BO) (Consultation #2-22-03-F-0129), issued March 17, 2003, addressed Federal and non-Federal entities actions related to typical operations, including net depletions and withdrawals, water and river management activities, operation of the Middle Rio Grande Project, flood control, and other management actions on the Middle Rio Grande, as well as their effects on the endangered silvery minnow and its designated critical habitat, the endangered flycatcher, threatened bald eagle, and endangered interior least tern.

The Bureau of Reclamation (Reclamation) and the U.S. Army Corps of Engineers (Corps) determined that the proposed action “may affect, is not likely to adversely affect” the bald eagle and the least tern and “may affect, is likely to adversely affect” the silvery minnow and flycatcher and “may adversely modify” designated critical habitat of the minnow. The Service concurred with the determinations for the eagle and tern. The Service also concluded that water operations and river maintenance of the Middle Rio Grande, as proposed in the February 2003 BA, are likely to jeopardize the continued existence of the silvery minnow and the flycatcher and adversely modify critical habitat of the silvery minnow.

In April 2006, Reclamation and the Corps subsequently reinitiated consultation (Consultation #2-22-03-F-0129-R1) requesting amendment to the 2003 BO evaluating effects on flycatcher designated critical habitat, amending Term and Condition 1.1 of RPM 1, and evaluating the effects of recent river drying on the minnow. The Service transmitted a letter amending the 2003 BO, determining that the proposed action did not destroy or adversely modify flycatcher designated critical habitat and also determined that all other determinations included in the 2003 BO regarding the silvery minnow and its critical habitat and the flycatcher remained unchanged.

Environmental commitments associated with the 2003 BO included Reasonable and Prudent Alternatives (RPAs) addressing water operations elements, habitat restoration elements, salvage and captive propagation elements, water quality

elements, and reporting elements. Additional terms and conditions affiliated with RPMs included commitments to 1) minimize silvery minnow take within the Rio Grande while performing water operations activities, flood control activities, and river maintenance activities and 2) minimizing loss of river drying and reduction of flycatcher reproductive success.

Improvements in operations that have occurred since the March 17, 2003, Biological Opinion (2003 BiOp) include a reduction in Middle Rio Grande Conservancy District (MRGCD) river diversions, improvements in water operations (daily coordination conference calls, etc.), Rio Grande Compact (Compact) relinquishment of credit water in 2003 and 2008, implementation of habitat restoration work, levee and Low Flow Conveyance Channel (LFCC) setback work in the San Acacia Reach, implementation of the Rio Grande silvery minnow (RGSM) augmentation program, Cochiti deviation to create spawning and recruitment flow, and various efforts to slow river degradation.

10.1 Corps of Engineers Actions with Early or Completed Consultation

10.1.1 Rio Grande Nature Center Habitat Restoration Project

In September 2006, the Corps submitted a biological assessment to the Service for the proposed Rio Grande Nature Center Habitat Restoration Project for the Albuquerque Reach of the Rio Grande and requested formal Section 7 consultation (Consultation #22420-2006-F-161). This project rehabilitated flood plain areas, reconnected the old channel to the river to create habitat for the minnow, and facilitated the regeneration of native vegetation suitable for the flycatcher while meeting priorities of the MRG ESA Collaborative Program to complete restoration projects in the Albuquerque Reach. The Service concurred with the Corps determination that the proposed project “may affect, is not likely to adversely affect” the bald eagle, flycatcher and critical habitat for the minnow. The Service determined that the proposed project is not likely to jeopardize the continued existence of the minnow; and although it may minimally adversely affect individual minnows in the 15-acre project area, the proposed project is anticipated to have a long-term positive impact on the species through improvements to quality and availability of suitable habitat.

Environmental commitments associated with the proposed Rio Grande Nature Center Habitat Restoration Project included development of protocols to monitor minnows in the ephemeral channel following high flows and to determine whether channel maintenance is warranted, reporting injured or dead minnows to the Service, and providing a final restoration monitoring report outlining results and effectiveness of the side channel restoration and embayments to the Service. Additional commitments were to monitor and report on water quality before,

during, and after construction activity and scheduling, to the extent possible, embayment construction during dry or frozen soil conditions.

10.1.2 Bosque Revitalization at Route 66 Project

In March 2008, the Corps submitted a biological assessment to the Service for the proposed Bosque Revitalization at Route 66 project for the Albuquerque Reach of the Rio Grande and requested formal Section 7 consultation (Consultation #22420-2008-F-0125). This project entails jetty jack removal, non-native shrub removal, native woody plantings, and creation of willow swales throughout a 121-acre area adjacent to the Central Avenue and Bridge Boulevard Bridges in Albuquerque. These riparian features would improve habitat conditions for the flycatcher and minnow. Three high flow side channels are expected to establish diverse mesohabitats that support the silvery minnow. Such habitat benefits the species through improved egg and larval retention, increased recruitment rates, and increased survival of both young-of-year (YOY) and adult minnows.

The Service concurred with the Corps' determination that the proposed project "may affect, is not likely to adversely affect" the flycatcher and designated critical habitat for the silvery minnow. The Service determined that the proposed project is not likely to jeopardize the continued existence of the minnow; and although it may minimally adversely affect individual minnows when constructing channel embayment areas, the project is anticipated to have a long-term positive impact on the species through improvements to quality and availability of suitable habitat.

The attendant Incidental Take Statement included Reasonable and Prudent measures to minimize take of silvery minnow due to habitat restoration activities; manage for the protection of water quality from activities associated with the restoration project; and to continue to work collaboratively with the Service on the Middle Rio Grande Endangered Species Act Collaborative Program.

10.2 Reclamation Actions with Early or Completed Consultation and General Commitments

10.2.1 Middle Rio Grande Riverine Habitat Restoration Project for the Albuquerque Reach of the Rio Grande in Bernalillo County, New Mexico (New Mexico Interstate Stream Commission)

In September 2005, Reclamation submitted a biological assessment to the Service on behalf of the New Mexico Interstate Stream Commission (ISC), addressing potential impacts of a proposed habitat restoration project within the Albuquerque Reach on the endangered silvery minnow, the endangered flycatcher, and the

threatened bald eagle (Consultation #22420-2006-F-02). The Service concurred with Reclamation's determination of "may affect, not likely to adversely affect" for the willow flycatcher and bald eagle, provided an opinion that the proposed action is not likely to jeopardize the continued existence of the minnow, that the proposed action "may affect is likely to adversely affect" minnows in the short-term with long-term "positive impact on the species," and that the proposed action is "not likely to destroy or adversely modify designated critical habitat" for the minnow.

Environmental commitments for the Albuquerque Reach Habitat Restoration Project required the ISC to monitor minnows at construction sites, use adaptive management as appropriate, develop and submit a Restoration Monitoring Plan to the Service, and report dead or injured minnows to the Service. Additional commitments were to schedule crossings during dry or frozen soil conditions, measure and report water quality parameters before, during, and after construction, as well as to report any hazardous materials spills (i.e., fuels, hydraulic fluids) to the Service.

10.2.2 Sandia Priority Site Project

In June 2006, Reclamation submitted a biological assessment to the Service of the proposed action on the endangered silvery minnow, the endangered flycatcher, and the threatened bald eagle. The proposed project included the protection of the east levee and canal system along the Albuquerque Reach between U.S. Highway 550 and into the Sandia Pueblo by creating secondary channels, realigning the main river channel, and installing bendway weirs and rootwad revetments to reduce bank erosion threatening the levee. The Service concurred (Consultation #22420-2006-F-039) with Reclamation's determination of "may affect, not likely to adversely affect" the flycatcher and eagle, also determined that the project "may affect, is not likely to adversely affect" minnow critical habitat, and that long-term effects would be beneficial. The Service concluded that the Sandia Priority Site Project was "not likely to jeopardize the continued existence of the silvery minnow," and that impacts on the population would be minimal because of the small area within occupied habitat.

Environmental commitments for the Sandia Priority Site Project required Reclamation to monitor minnows at construction sites, use adaptive management to modify construction activities, partial dewatering and habitat improvement activities, as appropriate, and to report dead or injured minnows to the Service. Additional commitments were to schedule crossings during dry or frozen soil conditions, measure and report water quality parameters before, during, and after construction, to report water quality measurements per conditions of Reclamation's Clean Water Act 401 certification to the Service and the Sandia

Pueblo, as well as to report any exceedance of pueblo water quality standards or spills (i.e., fuels, hydraulic fluids) to the Service and the Sandia Pueblo, and immediately remediate those conditions.

10.2.3 Middle Rio Grande Riverine Habitat Restoration Phase II Project for the Albuquerque Reach (ISC)

In August 2006, Reclamation submitted a biological assessment to the Service on behalf of the ISC, addressing potential impacts of Phase II of a proposed habitat restoration project within the Albuquerque Reach on the endangered silvery minnow, the endangered flycatcher, and the threatened bald eagle. This phase of the proposed project was to create or improve habitat for minnows, including promoting egg-retention, larval rearing, young-of-year and overwintering habitat for silvery minnow within four subreaches of the Albuquerque Reach in support of Element S of the RPA in the 2003 BiOp. Habitat restoration techniques included island modifications, bank scouring, and installation of woody debris to improve aquatic habitats. The Service concurred (Consultation #22420-2006-F-160) with Reclamation's determination of "may affect, not likely to adversely affect" for the bald eagle and the flycatcher and its critical habitat, and provided an opinion that the proposed action is not likely to jeopardize the continued existence of the minnow and is not likely to destroy or adversely modify designated critical habitat. The Service also determined that the proposed action may adversely affect individual minnows in the short term, but that the proposed action was likely to have a long-term positive impact on the species.

Environmental commitments for the Albuquerque Reach Habitat Restoration Project required the ISC to monitor minnows at construction sites, use adaptive management as appropriate, develop protocol to monitor for minnows in ephemeral channels following high flows, and determine whether channel maintenance is warranted in coordination with the Service, report effectiveness of all treatments to the Service in a timely manner, and report dead or injured minnows to the Service. Additional commitments were to schedule crossings during dry or frozen soil conditions, measure and report water quality parameters before, during, and after construction, as well as report water quality measurements per conditions of Reclamation's Clean Water Act 401 certification to the Service and the Sandia Pueblo.

10.2.4 Santo Domingo Pueblo Restoration Project Phase II

Reclamation submitted a BA to the Service in April 2007, requesting concurrence for proposed activities associated with the Santo Domingo Pueblo Restoration Project Phase II, entailing three excavation sites on the east side of the Rio Grande beginning 1.5 miles south of SP88 and Bridge No. M102, during winter and placement of large woody debris in the Rio Grande to reduce water

velocity and enhance sediment deposition as a means for improving habitat for the minnow in the Cochiti Reach. Reclamation determined that the proposed action “may affect, is not likely to adversely affect” the endangered silvery minnow and the threatened bald eagle. The Service concurred with Reclamation’s determinations by letter dated April 19, 2007, provided that general environmental commitments for the bald eagle were followed, and excavation would take place during winter low flows or dry periods, no equipment would enter the river, silt fences and sand bags would be used to isolate the excavation area from the river and minimize transport of sediment from the work area into the river, standard best management practices (BMPs) would be used, and that the Santo Domingo Pueblo would be responsible for monitoring and notifying the Service if silvery minnows were to use ephemeral channels or other isolated habitats forming in the channel.

10.2.5 Proposed Installation of Crump Weir and Passive Integrated Transponder Tag Readers in the Albuquerque Drinking Water Project Fishway

Reclamation submitted a biological assessment to the Service on May 1, 2007, the proposed installation of crump weir and passive integrated transponder tag readers in the Albuquerque Drinking Water Project Fishway. Reclamation determined that the proposed action “may affect, is not likely to adversely affect” the minnow or its designated critical habitat. The Service concurred with Reclamation’s determinations by letter dated June 21, 2007, provided that the following conditions were followed: 1) block nets would be used to exclude minnows from the work area and installation would occur by hand.

10.2.6 Perennial Rio Grande Silvery Minnow Refugia at Drain Outfalls

Reclamation submitted a biological assessment to the Service on October 4, 2006, for the proposed Perennial Rio Grande Silvery Minnow Refugia at Drain Outfalls Project (Perennial Outfalls Project), located in the Isleta Reach of the MRG. The project partners will create habitat structures for minnows using large woody debris in three drain outfalls: Los Chavez and Peralta Wasteways and the Lower Peralta Drain #1. Reclamation determined that the proposed action “may affect, is not likely to adversely affect” the flycatcher or its designated critical habitat, or the bald eagle. The Service (Consultation #22420-2007-F-0021) concurred with Reclamation’s determinations and also found that the project would have temporary adverse effects to the minnow and its designated critical habitat; the project would benefit the minnow during dry conditions by creating refugial habitat.

Environmental commitments for the Perennial Outfalls Project required Reclamation to minimize take of silvery minnow during construction; manage for water quality protection from activities associated with construction by avoiding the wetted river channel with heavy equipment during high flows; and by monitoring water quality before, during, and after construction activities. Additional commitments included monitoring of piscivores in newly created habitats and reporting monitoring results to the Service; coordinating with the Service if poor water quality, potential for stranding, high predation levels, or occurrence of disease were observed in the pools created by the project; and to determine if a decrease in habitat suitability or value occurred due to the project, and if observed, required removal of the structures.

10.2.7 Corrales Siphon River Maintenance Project

In September 2007, Reclamation submitted a biological assessment to the Service of the proposed action on the endangered silvery minnow and the endangered flycatcher and their respective designated critical habitats. The proposed project would protect the inverted siphon and associated infrastructure from damage caused by potential westward migration of the Rio Grande by moving the river eastward using a bioengineering technique designed to create and improve habitat for the minnow. Reclamation determined that the proposed project “may affect, but is not likely to adversely affect” the flycatcher or its designated habitat. The Service concurred with this determination (Consultation #22420-2007-F-0056) and also determined that the proposed project was not likely to jeopardize the continued existence of the minnow or result in adverse modification of its designated critical habitat. The project also was anticipated to be of long-term benefit to silvery minnow habitat quality.

Environmental commitments for the Corrales Siphon Project included monitoring for minnows prior to, and at least four times during, and after construction, reporting findings and results to the Service, transporting fill materials with heavy equipment across the Rio Grande as few times as possible to minimize destabilization of sediments, avoidance (to the extent possible) of crossing the wetted channel of the river at flows exceeding 900 cubic feet per second (cfs), and monitoring water quality during and after equipment operating in the river.

10.2.8 Proposed Pueblo of San Felipe Bosque Restoration Project

In September 2007, Reclamation submitted a biological assessment to the Service on behalf of the Pueblo of San Felipe, addressing potential impacts of a bosque restoration project under Section 7 of the Endangered Species Act of 1973, as amended. The proposed project would remove about 10 acres of non-native vegetation in the abandoned riparian flood plain of the bosque and subsequent replanting of Goodding’s willow (*Salix gooddingii*) and Rio Grande cottonwood

(*Populus deltoides* var. *wislizeni*) poles. Reclamation determined that the proposed action “may affect, is not likely to adversely affect” the minnow or its designated critical habitat or the flycatcher and its designated critical habitat. The Service concurred with these determinations (Consultation # 22420-2008-IC-0010) provided that no vegetation would be removed within 20 feet of the Rio Grande; bankline would not be disturbed; and the construction would take place outside normal breeding and nesting seasons for the flycatcher.

10.2.9 Elephant Butte Reservoir Temporary Channel Maintenance Project

In October 2007, Reclamation submitted a BA addressing the effects of the proposed project on the endangered flycatcher and the minnow and the designated critical habitat for each. The proposed action was described by reaches and by activities, and includes maintenance of the temporary channel, which facilitates delivery of water and sediment from RM 57.8 to Elephant Butte Reservoir, for a period of 5½ years. Activities included ongoing non-channel enhancement features, maintenance operations, future temporary channel construction, and widening and realignment of the existing temporary channel. The Service determined (Consultation # 22420-2008-F-0017) that the project was not likely to jeopardize the continued existence of the minnow or flycatcher or result in adverse modification of designated critical habitat. In April 2008, the Service transmitted a letter amending the January 2008 BO, pursuant to communication among the Service and Reclamation in February and March.

In order to fulfill environmental commitments for this project, Reclamation will:

- 1) to the extent possible, operate airboats in the middle of the channel;
- 2) avoid pumping directly from the channel to minimize minnow egg and larvae entrainment, and use sumps adjacent to the channel whenever feasible;
- 3) in coordination with the Service, fund a program to monitor minnows in the temporary channel;
- 4) support CP efforts to prioritize and implement habitat restoration projects in the San Acacia Reach pursuant to the Long-Term Plan (MRGESCP 2006);
- 5) excavate an area as few times as possible; and when excavating within the wetted channel, minimize movement of excavator tracks and bucket contact with the bed of the channel to minimize sediment disturbance;
- 6) monitor water quality before, during, and after the project, which may include visual observations or direct sampling;
- 7) use current flycatcher monitoring data and avoid working within 0.25 mile of an active nest;
- 8) monitor vegetation health, incorporating vegetation mapping;
- 9) monitor ground water levels from the north boundary of the Bosque del Apache (BDA) refuge, along the temporary channel and the west side of the reservoir, as needed;
- 10) monitor the riverbed and movement of the headcut; and
- 11) work with the Service to plan and

implement a specific restoration project to establish flycatcher habitat on the Rio Grande, outside the San Marcial Reach, by January 2009, and implemented by July 2013.

10.2.10 Rio Grande Restoration Project at Santa Ana Pueblo

In June 2007, Reclamation submitted a biological assessment to the Service on behalf of the Santa Ana Pueblo, to perform a project to protect existing levees and associated infrastructure using bioengineering and other techniques, including installation of 13 bendway weirs to protect a threatened bankline by moving the river westward and relocating sediment to the west bank of the river, and to provide habitat for listed species, the endangered silvery minnow and Southwestern willow flycatcher. No critical habitat exists for either species and, therefore, will not be affected. Reclamation determined that the project “may affect, is not likely to adversely affect” the flycatcher. The Service concurred (Consultation # 22420-1998-F-0168-R002) and also determined that the Santa Ana Restoration Project is not likely to jeopardize the continued existence of the silvery minnow or result in adverse modification of designated critical habitat. The minnow and its food base will be adversely affected by the use of heavy equipment and placement of fill in the wetted channel of the river.

Environmental commitments for the Santa Ana Restoration Project include limiting equipment crossing speeds to 5 miles per hour (mph) for the first three crossings per day and, to the extent feasible, limit all crossing speeds to 5 mph, reporting of dead or injured minnows to the Service, and immediately cease construction activity until the Service determines it is safe to resume. Additionally, Reclamation would transport fill materials across the Rio Grande as few times as possible, avoid crossing the wetted channel of the river at greater than (>) 900-cfs flows, monitor water quality before, during, and after construction activities.

10.2.11 River Mile 111 Priority Site Project

In March 2008, Reclamation submitted a biological assessment to the Service evaluating the effects of relocation of the Low Flow Conveyance Channel (LFCC) and the associated levee to allow the Rio Grande more freedom to move within its historic flood plain on the endangered flycatcher and minnow and its designated critical habitat. Reclamation determined that the project “may affect, is not likely to adversely affect” the minnow and its designated habitat. The Service concurred with this determination (Consultation #22420-2008-I-0067), provided the following conditions were met: All construction of woody debris piles would occur under dry working conditions or during low flow conditions, recent surveys of the LFCC downstream of the proposed construction area did not find any minnows, the Lemitar radial gate structure would be closed during the

construction operations, cottonwood root wads would be placed on the bank near RM 111 and would cascade into the river as it migrates west, the Mitigation Plan described in the BA would be fully implemented, and the Conservation Measures described in the BA would also be fully implemented by Reclamation.

10.2.12 Drain Unit 7 Extension River Maintenance Priority Site Project

On June 13, 2008, Reclamation submitted a biological assessment, along with a letter formally requesting consultation re-initiation, to the Service for the proposed Drain Unit 7 (DU7) Extension River Maintenance Priority Site Project. The project will reinforce the bankline and protect the adjacent access road and drain by placing riprap along the bank within the active river channel. Reclamation determined that the proposed action may affect, and is likely to adversely affect, the endangered minnow during construction and may affect, and is not likely to adversely affect designated minnow critical habitat. The Service concluded that the proposed action is not likely to jeopardize the continued existence of the minnow and that there is likely to be short-term adverse effects on a very small portion of designated critical habitat at the construction site.

Environmental commitments associated with the proposed DU7 Project include implementing construction BMPs and dust abatement during construction and revegetating the site, along with performing construction outside minnow spawning periods (construction exclusion period of April 15–July 1).

10.2.13 Rio Grande Sediment Plug Removal Project at Bosque del Apache National Wildlife Refuge

In August 2008, Reclamation submitted a biological assessment to the Service addressing potential impacts of removal of a sediment plug that formed within the Rio Grande at the BDA during spring runoff 2008, on the endangered minnow and its designated critical habitat, and on the endangered flycatcher proposed habitat restoration project within the Albuquerque Reach on the endangered silvery minnow, the endangered flycatcher, and the threatened bald eagle (Consultation #22420-2006-F-160). This phase of the proposed project was to create or improve habitat for minnows, including promoting egg-retention, larval rearing, young-of-year, and overwintering habitat for silvery minnow within four subreaches of the Albuquerque Reach in support of Element S of the RPAs in the 2003 BiOp. Habitat restoration techniques included island modifications, bank scouring, and installation of woody debris to improve aquatic habitats. The Service concurred with Reclamation's determination of "may affect, not likely to adversely affect" for the bald eagle and the flycatcher and its critical habitat and provided an opinion that the proposed action is not likely to jeopardize the continued existence of the minnow and is not likely to destroy or adversely

modify designated critical habitat. The Service also determined that the proposed action may adversely affect individual minnows in the short term, but that the proposed action was likely to have a long-term positive impact on the species.

Reclamation's environmental commitments for the Sediment Plug Removal Project include: 1) construction of at least four embayments (approximately 30–50 feet in width and 50–70 feet in length, each) on the west side of the pilot channel to promote channel widening to be completed during Phase I(b); 2) collection of data for 4 years following excavation of the pilot channel to monitor channel degradation/aggradation and overbanking patterns—including cross-section data of the river channel from the north boundary of BDA to the San Marcial Railroad Bridge, at least two inspections of the river channel by boat when overbanking begins during runoff, and at least once during the 4 years, cross-section data of the river channel and flood plains will extend between endpoints for these rangelines; 3) Data collected as above will be analyzed and compared to 2002 and 2005 cross-section data to assess changes to the riverbed thalweg and channel geometry including width/depth ratio, and data and analysis will be provided to the Service (NMESFO and the BDA); and 4) indepth analysis of alternatives to pilot channel construction within the aforementioned reach of river will be initiated within 6 months of completion of Phase I(b) of the project and will include at least three strategies to address sediment transport through the reach, maintenance of connected unvegetated river bars, opportunities for river realignment following sand plug formation, river connectivity during low flows, river/flood plain surface connectivity, surface water supplies to adjacent wetlands, and effects on threatened, endangered, or candidate species. This analysis must be conducted in coordination with the Service, and the final report must be completed within 3 years and will be used in all future sediment plug removal or maintenance activities within the BDA.

10.2.14 Middle Rio Grande Isleta Reach Riverine Habitat Restoration Project

In October 2008, Reclamation submitted a biological assessment to the Service on behalf of the ISC, addressing potential impacts of a proposed riverine habitat restoration project within the Isleta Reach on the endangered silvery minnow and the endangered flycatcher. The proposed project was to create or improve habitat for minnows, including promoting egg-retention, larval rearing, and young-of-year habitat for silvery minnow within the Isleta Reach in support of Element S of the RPA in the March 2003 BO. Habitat restoration techniques included creation of bankline embayments, ephemeral channels, island modifications, bank scouring, placement of woody debris, removal of lateral constraints, as well as flood plain vegetation management. The Service concurred (Consultation #22420-2009-F-0002) with Reclamation's determination of "may affect, not likely to adversely affect" for the flycatcher and its critical habitat and

provided an opinion that the proposed action is not likely to jeopardize the continued existence of the minnow and is not likely to destroy or adversely modify designated critical habitat.

Environmental commitments for the Isleta Reach Riverine Habitat Restoration Project required Reclamation to monitor minnows at construction sites, report site-specific monitoring protocol availability and effectiveness of all treatments to the Service in a timely manner, and report dead or injured minnows to the Service. Additional commitments were to encourage adaptive management of flows and conservation of water to benefit listed species, and to measure and report water quality parameters before, during, and after construction, as well as report water quality measurements per conditions of Reclamation's Clean Water Act 401 certification to the Service.

10.2.15 Middle Rio Grande Isleta Reach Riverine Habitat Phase IIa Restoration Project

In November 2008, Reclamation submitted a biological assessment to the Service on behalf of the ISC, addressing potential impacts of a proposed riverine habitat restoration project within the Angostura Reach on the endangered silvery minnow and the endangered flycatcher. The proposed project was to create or improve habitat for minnows, including promoting egg-retention, larval rearing and young-of-year habitat for silvery minnow, as well as to facilitate evaluation of habitat restoration techniques. The project supported Element S of the RPA in the 2003 BiOp. Habitat restoration techniques included island, bar, and bankline modifications. The Service concurred (Consultation #22420-2009-F-0016) with Reclamation's determination of "may affect, not likely to adversely affect" for the flycatcher and its critical habitat and provided an opinion that the proposed action is not likely to jeopardize the continued existence of the minnow and is not likely to destroy or adversely modify designated critical habitat.

Environmental commitments for the Isleta Reach Riverine Habitat Restoration Phase IIa Project required Reclamation to monitor minnows at construction sites, ensure post-construction monitoring protocol for silvery minnow entrapment is implemented, report effectiveness of all treatments to the Service in a timely manner, and report dead or injured minnows to the Service. Additional commitments were to encourage adaptive management of flows and conservation of water to benefit listed species and to measure and report water quality parameters before, during, and after construction, as well as report water quality measurements per conditions of Reclamation's Clean Water Act 401 certification to the Service.

10.2.16 Pueblo of Sandia Bosque Rehabilitation Project

In December 2008, Reclamation submitted a biological assessment to the Service on behalf of the Pueblo of Sandia, addressing potential impacts of a proposed habitat restoration project within the Pueblo of Sandia on the endangered silvery minnow and the endangered flycatcher. The proposed project was to design and implement techniques to restore and enhance riverine and riparian habitat for the benefit of the silvery minnow, including promoting egg-retention, larval rearing, and young-of-year habitat for silvery minnow, as well as creating suitable habitat for future use by flycatchers. Habitat restoration techniques included the renovation of a side channel, placement of woody debris within the renovated channel, and planting approximately 5 acres of native woody vegetation. The Service concurred (Consultation #22420-2009-F-0022) with Reclamation's determination of "may affect, not likely to adversely affect" for the flycatcher and its critical habitat and provided an opinion that the proposed action is not likely to jeopardize the continued existence of the minnow and is not likely to destroy or adversely modify designated critical habitat. The Service also determined that the proposed action may be anticipated to have long-term beneficial effects on silvery minnows by restoring and enhancing riverine and riparian habitat.

Environmental commitments for the Pueblo of Sandia Bosque Rehabilitation Project required Reclamation and the Pueblo of Sandia to ensure that restoration treatment occurs between September 1 and April 15, to monitor minnows at construction sites, to use adaptive management as appropriate, to monitor for minnows in ephemeral channels following high flows, to report effectiveness of all treatments and dead or injured minnows to the Service in a timely manner. Additional commitments were to measure and report water quality parameters before, during, and after construction as well as report water quality measurements.

10.2.17 Pueblo de San Felipe Priority Sites Phase I Project

In September 2009, Reclamation submitted a biological assessment to the Service addressing potential impacts of proposed river channel maintenance activities, at four priority sites within the Pueblo of San Felipe on the endangered silvery minnow and its designated critical habitat. The proposed project was to eliminate bank erosion and migration through bankline improvements. Techniques included removal of vegetation and jetty jacks, vegetation planting, bar removal, lining banks with riprap, and installation of bioengineered bankline stabilization. The Service concurred (Consultation #22420-2009-F-0089) with Reclamation's determination of "may affect, not likely to adversely affect" for the minnow and its critical habitat and is not likely to adversely modify designated critical habitat.

Environmental commitments for the Pueblo de San Felipe Priority Sites Phase I Project required Reclamation to ensure that in water work not be conducted

during spring runoff, monitor minnows at construction sites, report site-specific monitoring results, and report dead or injured minnows to the Service. Additional commitments were to encourage adaptive management of flows and conservation of water to benefit listed species and to pursue population surveys for silvery minnow in the Cochiti Reach.

10.2.18 Two Rivers and Three Falls Flycatcher Habitat Expansion Project

In October 2009, Reclamation submitted a memorandum requesting concurrence for proposed activities to enhance, create, and expand flycatcher habitat at Ohkay Owingeh in Sandoval County, New Mexico. The proposed project was to improve the quality of riparian habitat by excavating a filled-in secondary channel and reconnect it to the river. The Service concurred (Consultation #22420-2010-I-0005) with Reclamation's determination of "may affect, not likely to adversely affect" for the flycatcher and its critical habitat and provided an opinion that the proposed action is not likely to jeopardize the continued existence of the minnow and is not likely to destroy or adversely modify designated critical habitat.

10.2.19 Middle Rio Grande Isleta Reach Phase II Riverine Habitat Restoration Project

In April 2010, Reclamation submitted a biological assessment to the Service on behalf of the ISC, addressing potential impacts of a proposed riverine habitat restoration project within the Isleta Reach on the endangered silvery minnow and the endangered flycatcher and respective designated critical habitats. The purpose of the proposed project was to create or improve habitat and provide benefits for the silvery minnow, the flycatcher, and the Middle Rio Grande ecosystem as a whole. Long-term goals included diversifying mesohabitat types to promote egg-retention, larval rearing and young-of-year habitat, create habitat adjacent to perennial water sources for silvery minnow, increase the extent of overbank inundation, and encourage fluvial process and river dynamics in four subreaches within the Isleta Reach. Habitat restoration techniques included creation of bankline benches, backwater embayments, ephemeral channels, and island/bar modifications. The Service concurred (Consultation #22420-2010-F-0060) with Reclamation's determination of "may affect, not likely to adversely affect" for the flycatcher or its critical habitat, and provided an opinion that the proposed action is not likely to jeopardize the continued existence of the minnow, and is not likely to destroy or adversely modify designated critical habitat.

Environmental commitments for the Isleta Reach Phase II Riverine Habitat Restoration Project required Reclamation to monitor minnows at construction sites, implement *Protocol for Monitoring Silvery Minnow Entrapment*, and report effectiveness of all treatments, as well as dead or injured minnows to the Service

in a timely manner. Additional commitments were to encourage adaptive management of flows and conservation of water to benefit listed species, and to measure and report water quality parameters before, during, and after construction as well as report water quality measurements.

10.2.20 Pueblo of Sandia Riverine Habitat Restoration Project

In May 2010, Reclamation submitted a biological assessment to the Service on behalf of the Pueblo of Sandia, addressing potential impacts of a proposed riverine habitat restoration project within the Sandia subreach of the Angostura (or Albuquerque) Reach on the endangered silvery minnow and the endangered flycatcher. The purpose of the proposed project was to create or improve habitat and provide benefits for the silvery minnow, the flycatcher, and the Middle Rio Grande ecosystem as a whole. Long-term goals included diversifying mesohabitat types to promote egg-retention, larval rearing and young-of-year habitat, create habitat adjacent to perennial water sources for silvery minnow, increase the extent of overbank inundation, and encourage fluvial process and river dynamics in support of Element S of the RPA in the 2003 BiOp. Habitat restoration techniques included creation of bankline benches, backwater embayments, ephemeral channels, and island/bar modifications. The Service concurred (Consultation #22420-2010-F-0083) with Reclamation's determination of "may affect, not likely to adversely affect" for the flycatcher and provided an opinion that the proposed action is not likely to jeopardize the continued existence of the minnow.

Environmental commitments for the Pueblo of Sandia Riverine Habitat Restoration Project required Reclamation to monitor minnows at construction sites, implement *Protocol for Monitoring Silvery Minnow Entrapment*, and report effectiveness of all treatments, as well as dead or injured minnows to the Service in a timely manner. Additional commitments were to encourage adaptive management of flows and conservation of water to benefit listed species and to measure and report water quality parameters before, during, and after construction, as well as report water quality measurements.

10.3 General Environmental Commitments from Early or Completed Consultations

The following are general environmental commitments from the aforementioned consultations pertaining to listed species and their habitats.

10.3.1 Southwestern Willow Flycatcher

Construction disturbance will be avoided near occupied and known flycatcher territories from April 15–August 15. A predetermined, standard-setting buffer distance around willow flycatcher territories has not been established; instead, such buffer zones will be defined on a case-by-case basis (Reclamation, 2001).

Future project sites with occupied or suitable habitat shall be surveyed for at least one breeding season prior to the start of any project activities. If flycatchers are detected within the boundaries of proposed projects, consultations will be initiated with the Service. It is Reclamation's intent to use the principles of adaptive management and monitor project sites sufficiently to accumulate the necessary data and information for future decisionmaking (Reclamation, 2001).

Reclamation will minimize the number of new transects that are cleared in conjunction with river surveying activities. As referenced in the 2001 BA, the collection and use of hydrographic data from transects provide better management of the Middle Rio Grande flood plain and river channel. Transect clearing or maintenance will not occur in occupied habitat. Out-of-use transects will be allowed to revegetate. Brushing will occur only when necessary for project purposes. If transect brushing is necessary, brushing or surveys during the breeding period (April 15–August 15) shall be avoided to minimize disturbance. Suitable or potential flycatcher habitat also can be avoided in certain cases by limiting brushing to the river's edge and not clearing beyond that point. All sites proposed for transect clearing will be reviewed by Reclamation biologists. If it is determined that the site is not suitable or potential willow flycatcher habitat, transect clearing will proceed under the above conditions (Reclamation, 2001).

10.3.2 Rio Grande Silvery Minnow

Reclamation will continue to conduct fish population monitoring at established locations in the Middle Rio Grande between Angostura Diversion Dam and the headwaters of Elephant Butte Reservoir. Pre- and post-construction monitoring for fish species will continue at constructed and proposed river maintenance sites through the Middle Rio Grande (Reclamation, 2001).

If it is necessary to redirect flows away from a construction site, steps will be taken to allow flows to recede from the area gradually so silvery minnow can avoid entrapment. Any disconnected aquatic habitat, e.g., isolated pools, associated with a river maintenance site will be sampled for silvery minnow which, if found, will be relocated into adjacent areas of flowing water (Reclamation, 2001).

Construction activities requiring the movement of equipment within the river channel will avoid potential silvery minnow habitat to the extent possible. When

feasible, xeric conditions will be sought to minimize direct impacts of construction activities to silvery minnow. While many of the proposed habitat enhancement activities involve extensive construction activity in or near the river channel, disturbance to the aquatic environment will be minimized (Reclamation, 2001).

10.3.3 Additional General Commitments

- Reclamation will carry out its actions to encourage seasonal overbank flooding and associated low velocity aquatic habitats in or near suitable willow flycatcher habitat within the bounds of the expected natural hydrograph.
- Reclamation will review the Southwestern Willow Flycatcher Recovery Plan and update the environmental commitments related to the willow flycatcher as appropriate.
- Reclamation will work with the MRGCD to: 1) facilitate fish passage at the three main diversion dams to allow upstream movement of the silvery minnow, 2) investigate the effects of fish, eggs, and larvae passage over the structures, and 3) alleviate the entrainment of silvery minnow into the irrigation system. Reclamation is currently conducting a planning study that focuses on some of these issues at San Acacia Diversion Dam.
- Reclamation will pursue habitat restoration along the Middle Rio Grande, in coordination with other parties, which includes the restoration of the river channel to create and enhance aquatic habitat for the silvery minnow and native riparian habitat for the willow flycatcher and bald eagle. The principles of adaptive resource management will be incorporated into habitat restoration. Reclamation, as a component of the river maintenance program, will perform two river restoration projects annually.
- Increase the number and distribution of overbank flooding sites and sites with shallow, low velocity water conditions to enhance silvery minnow habitat, assist in regeneration of native vegetation, and provide for flooding in suitable habitat for the willow flycatcher during the breeding season. Monitoring will be conducted to quantify the extent of overbank flooding.
- Eliminate mowing of native riparian vegetation unless it contributes to habitat restoration or is required for safe conveyance of flood flows.
- In areas where impacts to mature cottonwoods cannot be avoided, Reclamation will replace the trees at a 10:1 ratio.

- Reclamation will continue to work with the MRGCD to improve gaging and real-time monitoring of water operations.

Reclamation will initiate efforts to define a suite of characteristics important for flycatcher habitat occupancy and nesting success. Conduct a preliminary examination and assessment of habitat parameters of occupied habitat within the delta of Elephant Butte Reservoir (near the LFCC) to determine features that characterize optimal habitat selected by flycatchers.