

RECLAMATION

Managing Water in the West

Joint Biological Assessment

**Bureau of Reclamation and Non-Federal Water
Management and Maintenance Activities
on the Middle Rio Grande, New Mexico**

Part IV – The Middle Rio Grande Endangered Species Collaborative Program Recovery Implementation Program

**Middle Rio Grande Project, New Mexico
San Juan-Chama Project, New Mexico
Upper Colorado Region**



**U.S. Department of the Interior
Bureau of Reclamation**

August 2013

Mission Statements

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

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.



Joint Biological Assessment

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Management and Maintenance Activities
on the Middle Rio Grande, New Mexico**

Part IV – Conservation Measure: The Middle Rio Grande Collaborative Program Recovery Implementation Program

**Middle Rio Grande Project, New Mexico
San Juan-Chama Project, New Mexico
Upper Colorado Region**

Submitted to the U.S. Fish and Wildlife Service

Rio Grande Silvery Minnow

Southwestern Willow Flycatcher

Pecos Sunflower

Interior Least Tern



**U.S. Department of the Interior
Bureau of Reclamation**

August 2013

Contents

| | |
|---------------------------------------|----|
| 1. Introduction..... | 1 |
| 1.1 Goals | 1 |
| 1.2 Principles..... | 2 |
| 2. Description of RIP Documents | 2 |
| 2.1 Program Document | 2 |
| 2.2 Action Plan..... | 2 |
| 2.3 Long-Term Plan | 3 |
| 3. RIP Program Document | 4 |
| 4. RIP Action Plan | 37 |
| 5. RIP Long Term Plan | 85 |

1. Introduction

The implementation of the Middle Rio Grande Endangered Species Collaborative Program Recovery Implementation Program (RIP) is a conservation measure proposed to offset the effects of proposed actions described in this BA. The foundational documents for the RIP are a Program Document, an Action Plan, and a Long-Term Plan (LTP). An annual work plan will reflect the specific activities and tasks to be implemented by the RIP during the year. The RIP will follow an adaptive management (AM) approach throughout the recovery implementation process. An AM guidance document, produced on behalf of the Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program), also is a part of the conservation measure.

The Executive Committee of the Collaborative Program unanimously endorsed the Program Document, Action Plan and LTP on July 18, 2013. Participants in the RIP, including the agencies whose actions are described in this biological assessment, anticipate that they will execute the Cooperative Agreement and establish the RIP when the new biological opinion is issued.

1.1 Goals

The goals of the RIP are to:

1. Conserve and contribute to recovery of the proposed and listed species.
 - Support the development of self-sustaining populations through implementation of the RIP Action Plan and Annual Work Plan.
 - Continually identify the critical scientific and management questions and uncertainties that will be addressed through adaptive management.
 - Assist in avoiding jeopardy to the species and adverse modification of designated critical habitat within the Program area.
2. Protect existing and future water uses.
 - Provide a mechanism for Endangered Species Act (ESA) compliance for actions that are the subject of Reclamation's Biological Assessment and U.S. Fish and Wildlife Service Bosque del Apache National Wildlife Refuge's Biological Assessment.
 - Provide a process for streamlined Section 7 consultation for future water uses needing compliance with the ESA.

- Obtain hydrologically sustainable solutions for the species.

1.2 Principles

The RIP may not impair state water rights of individuals and entities or federal reserved water rights of individuals and entities; federal or other water rights of Indian nations and Indian individuals, or Indian trust assets; San Juan-Chama Project contractual rights; other contractual or storage rights; or the State of New Mexico's ability to comply with Rio Grande Compact delivery obligations. Water to be acquired or otherwise made available for endangered species benefits must be from a willing donor, seller, or lessor and be used in compliance with applicable federal law and the laws of the State of New Mexico including, but not limited to, permitting requirements. Consistent with the above principles, the RIP will also conduct its activities in compliance with applicable federal laws and regulations, including those for permitting, regulatory compliance, and contracting.

The RIP will use adaptive management principles and processes pursuant to Section VII of the Program Document.

The RIP will be implemented in a manner that is transparent to stakeholders, the public, and other interested parties.

2. Description of RIP Documents

2.1 Program Document

The Program Document provides the framework for the RIP. It describes, among other things, the RIP's purpose and goals, its scope, the organizational structure and governance protocols for RIP implementation, the substantive RIP Action Plan elements, criteria for measuring progress, and principles for compliance under the ESA.

2.2 Action Plan

The Action Plan is the "living" document that describes the Program's and its members' commitments to the RIP over five year increments. The Action Plan is organized to focus RIP activities on the species of concern in a manner that promotes and emphasizes the integration of the essential components of species habitat (water, channel morphology, flood plain, food, water quality, etc.) within an adaptive management framework. The recovery actions and tasks identified in this Action Plan include those considered to be most important, within a five-year

timeframe, to alleviate threats to species and promote recovery. Among other activities, the Action Plan also includes specific actions and tasks that were required under the 2003 Biological Opinion (BO) and are still important to continue.

Annual updates of the Action Plan will ensure that the RIP both recognizes its successes and acknowledges any challenges and impediments to accomplishing the elements, actions, and tasks set forth in the plan. On an annual basis, new elements, actions, and tasks will be added to the Action Plan as needed, generally from the inventories of actions described in the Program's LTP and species recovery plans, which include possible additional species recovery actions. All updates or revisions to the RIP Action Plan shall be approved by the EC.

2.3 Long-Term Plan

The LTP serves as a guidance document providing an inventory of beneficial activities that may be implemented by the RIP participants to meet its purposes and goals. This LTP is based on the framework of the silvery minnow and flycatcher recovery plans issued by the Service in 2010 and 2002, respectively. Future adjustments to the LTP will reflect new information on the hydrology of the MRG and on the life history of the species and will consider the Service's recommendations during its annual sufficient progress evaluation, any revised species recovery plan actions, and newly listed or proposed species. The LTP will also incorporate information from the adaptive management process.

3. RIP Progam Document



Middle Rio Grande Endangered Species Collaborative Program

Recovery Implementation Program

Final Draft Program Document

Endorsed by EC July 18, 2013

Final Draft
July 18, 2013

Contents

| | | |
|-------|--|----|
| I. | Statement of Purpose and Goals | 1 |
| A. | Purpose..... | 1 |
| B. | Goals | 1 |
| II. | History of Program | 3 |
| A. | Species Listings, Critical Habitat Designations, and Resulting Actions | 3 |
| B. | History of the Collaborative Program, MRG Water Management ESA Section 7 Consultations, and Related Legislation..... | 4 |
| C. | RIP Documents | 5 |
| III. | Program Scope | 6 |
| A. | Program Area | 6 |
| B. | Listed Species and Critical Habitat..... | 7 |
| C. | Water Uses and Management Operations..... | 8 |
| D. | RIP Activities | 9 |
| IV. | RIP Organizational Structure and Governance Procedures | 10 |
| A. | Organizational Structure and Membership | 10 |
| B. | Governance Procedures | 15 |
| V. | Implementation of the RIP | 16 |
| A. | Long Term Plan | 16 |
| B. | RIP Action Plan | 16 |
| C. | Annual Work Plan..... | 17 |
| VI. | Principles for ESA Compliance | 18 |
| A. | Regulatory Certainty under the RIP | 18 |
| B. | Sufficient Progress Determination | 18 |
| C. | Annual RIP Report..... | 20 |
| D. | Association with Prior Biological Opinions | 21 |
| E. | Reliance on the RIP for ESA Compliance | 21 |
| F. | ESA Compliance Protocols for Individual Actions | 22 |
| VII. | Adaptive Management | 24 |
| A. | Role of Adaptive Management | 24 |
| B. | Science and Management Coordination Meetings | 24 |
| C. | AMP-1 and Next Steps in Refining Adaptive Management..... | 24 |
| VIII. | Data and Peer Review | 26 |
| A. | Transparency for Data and Science Used by the RIP | 26 |
| B. | Peer Review Process | 26 |
| IX. | Program Modification..... | 27 |
| A. | Amendment of the RIP Program Document..... | 27 |
| X. | RIP Budget Guiding Principles..... | 28 |
| | Table 1 – Historical Middle Rio Grande Collaborative Program Funding Levels | 29 |
| | Table 2 – RIP Budget Categories with Reclamation’s 2008-2012 Funding Levels | 29 |

I. Statement of Purpose and Goals

The Executive Committee (EC) of the Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program or Program) has decided to advance the Collaborative Program through the structure of a recovery implementation program (RIP) to further the interests of efficiency and increased emphasis on species recovery and Endangered Species Act (ESA) compliance. Hereinafter, the Collaborative Program shall perform its functions through implementation of the RIP. This Program Document describes, among other things, the RIP's purpose and goals, its scope, the organizational structure and governance protocols for RIP implementation, the substantive RIP Action Plan elements, criteria for measuring progress, and principles for compliance under the ESA.

A. Purpose

The general purpose of the RIP is:

To protect and improve the status of species listed pursuant to the ESA within the Middle Rio Grande (MRG) by implementing certain recovery activities to benefit and work toward recovery of those species and their designated critical habitats, with special emphasis on the Rio Grande Silvery Minnow (*Hybognathus amarus*; silvery minnow) and the Southwestern Willow Flycatcher (*Empidonax traillii extimus*; flycatcher);

and, simultaneously,

To protect existing and future water uses while complying with applicable state and federal laws, rules and regulations, and to serve as the ESA coverage vehicle for entities that rely on the RIP as the ESA conservation measure for the effects of water uses and management actions in the Program area (Figure 1).

B. Goals

The goals of the RIP are to:

1. Conserve and contribute to recovery of the proposed and listed species.
 - Support the development of self-sustaining populations through implementation of the RIP Action Plan and Annual Work Plan.
 - Continually identify the critical scientific and management questions and uncertainties that will be addressed through adaptive management.
 - Assist in avoiding jeopardy to the species and adverse modification of designated critical habitat within the Program area.

2. Protect existing and future water uses.

- Provide a mechanism for ESA compliance for actions that are the subject of Reclamation's Biological Assessment (January 16, 2013) and U.S. Fish and Wildlife Service Bosque del Apache National Wildlife Refuge's Biological Assessment (February 22, 2013).
- Provide a process for streamlined Section 7 consultation for future water uses needing compliance with the ESA.
- Obtain hydrologically sustainable solutions for the species.

C. Principles

The RIP may not impair state water rights of individuals and entities or federal reserved water rights of individuals and entities; federal or other water rights of Indian nations and Indian individuals, or Indian trust assets; San Juan-Chama Project contractual rights; other contractual or storage rights; or the State of New Mexico's ability to comply with Rio Grande Compact delivery obligations. Water to be acquired or otherwise made available for endangered species benefits must be from a willing donor, seller, or lessor and be used in compliance with applicable federal law and the laws of the State of New Mexico including, but not limited to, permitting requirements. Consistent with the above principles, the RIP will also conduct its activities in compliance with applicable federal laws and regulations, including those for permitting, regulatory compliance, and contracting.

The RIP will use adaptive management principles and processes pursuant to Section VII.

The RIP will be implemented in a manner that is transparent to stakeholders, the public, and other interested parties.

II. History of Program

A. Species Listings, Critical Habitat Designations, and Resulting Actions

The silvery minnow was listed as endangered by the U.S. Fish and Wildlife Service (Service) in 1994 and the flycatcher was listed in 1995. Critical habitat was designated for the silvery minnow in 2003 and revised for the flycatcher in 2013; both species have designated critical habitat within the MRG.

Drought conditions in 1996 and the realization that the needs of the endangered species could conflict with the needs of MRG water users served as the impetus for increased cooperation among affected entities to develop proactive solutions. Supplemental water management to support ESA compliance and MRG water operations began in 1996.

In 1997, federal agencies joined to outline alternatives to address the water needs of the silvery minnow and accommodate the needs of the MRG water users. The alternatives were presented in a white paper and included water acquisition, water management, and water-use efficiencies. The white paper also recommended the development of a plan of action. In 1998, the Alliance for the Rio Grande Heritage developed a green paper in response. The green paper proposed that all the key players and interested participants be included to assure adequate river flows and shared responsibility, and proposed acquisition and storage of water for conservation purposes. Following exchange of these position papers, interested parties began meeting and exchanging information to evaluate and prioritize potential solutions and define future collaborative actions. Participating organizations included American Rivers, Defenders of Wildlife, Forest Guardians, Land and Water Fund, National Audubon Society-New Mexico, New Mexico Sportsmen, Rio Grande Restoration, Sierra Club, City of Albuquerque, City of Santa Fe, Middle Rio Grande Conservancy District (MRGCD), New Mexico Interstate Stream Commission (NMISC), New Mexico Office of the State Engineer (OSE), the Service, U.S. Army Corps of Engineers (Corps), and Bureau of Reclamation (Reclamation). These efforts led to formation of the ESA Workgroup.

Despite these efforts, in 1999 a complaint was filed, on behalf of the silvery minnow, against Reclamation and the Corps for alleged ESA and National Environmental Policy Act violations. However, all parties remained active in the collaborative ESA Workgroup process.

Court-ordered mediation in 2000 led to an Agreed Order that, among other things, provided additional supplemental water for both ESA and irrigation purposes. Subsequent efforts included pumping from the Low Flow Conveyance Channel, the development of the City of Albuquerque's silvery minnow naturalized refugium, and support for improved metering and water transport efficiency of the MRGCD.

B. History of the Collaborative Program, MRG Water Management ESA Section 7 Consultations, and Related Legislation

In 2001, the Collaborative Program first received congressional appropriations for implementing projects beneficial to federally listed species, and Reclamation and the Corps (the action agencies) began ESA Section 7 consultations with the Service over MRG water operations, flood control, and maintenance. The Service issued a three-year BO that provided ESA compliance for continued water management.

In April 2002, a Memorandum of Understanding was signed to recommit the parties and formalize the Collaborative Program's governance.

In August 2002, Reclamation requested reinitiation of consultation and on September 12, 2002, the Service issued a jeopardy biological opinion with no reasonable and prudent alternative to the proposed action. District Court Judge Parker found this biological opinion to be arbitrary and capricious and ordered Reclamation to maintain river flows ordered by the Court and ordered Reclamation and the Service to reinitiate consultation.¹

In 2003, Reclamation and the Corps again consulted with the Service and the Service issued a 10-year BO in March. This 2003 BO had a significant number of required flow and non-flow activities and offered broad ESA coverage utilizing a broad water depletions-based analysis.

As directed by Congress (P.L. 108-199), the Secretary of the Interior formally established the Executive Committee (EC) in 2004 to increase the efficiency of the Collaborative Program and implemented a 75/25 federal/non-federal cost sharing provision. The EC consists of designated representatives of signatory members of the Collaborative Program and has operated to assist in making priority decisions and meeting specific goals. The Collaborative Program approved Program By-laws in October 2006 and approved a Long Term Plan (LTP) in November 2006.

In 2008, the EC adopted a Memorandum of Agreement (MOA) that confirmed the Collaborative Program in accordance with the 2006 By-laws. The Consolidated Appropriations Act, 2008 determined that the acquisition of water necessary to comply with the 2003 BO or in furtherance of objectives set forth in the Collaborative Program LTP shall be at full federal expense, and established that the non-federal share of activities shall be 25 percent.

The Omnibus Appropriations Act, 2009 authorized the Secretary of the Army to carry out and fund planning studies, watershed surveys and assessments, or technical studies at 100 percent federal expense to accomplish purposes of the 2003 BO, any related subsequent BO, and the Collaborative Program LTP. It also authorized the Secretary of the Interior (acting through the Commissioner of Reclamation), in collaboration with the EC, to enter into any grants, contracts, cooperative agreements, interagency agreements, or other agreements that the Secretary

¹ The Tenth Circuit Court of Appeals subsequently vacated Judge Parker's decision on April 21, 2010.

determines to be necessary to comply with the 2003 BO or any related subsequent BO or in furtherance of the objectives set forth in the Collaborative Program LTP. This recognized a 25 percent non-federal cost share in cash or in-kind contributions; specified that the acquisition of water and any administrative costs shall be at full federal expense; and provided that not more than 15 percent of amounts appropriated shall be made available for administrative expenses.

In 2009, the EC directed efforts to pursue implementation of the Collaborative Program through a RIP to enhance the focus on recovery activities, and to serve as an ESA compliance vehicle using a new LTP as a mechanism for advancing the Program based on the framework of the silvery minnow and flycatcher recovery plans.

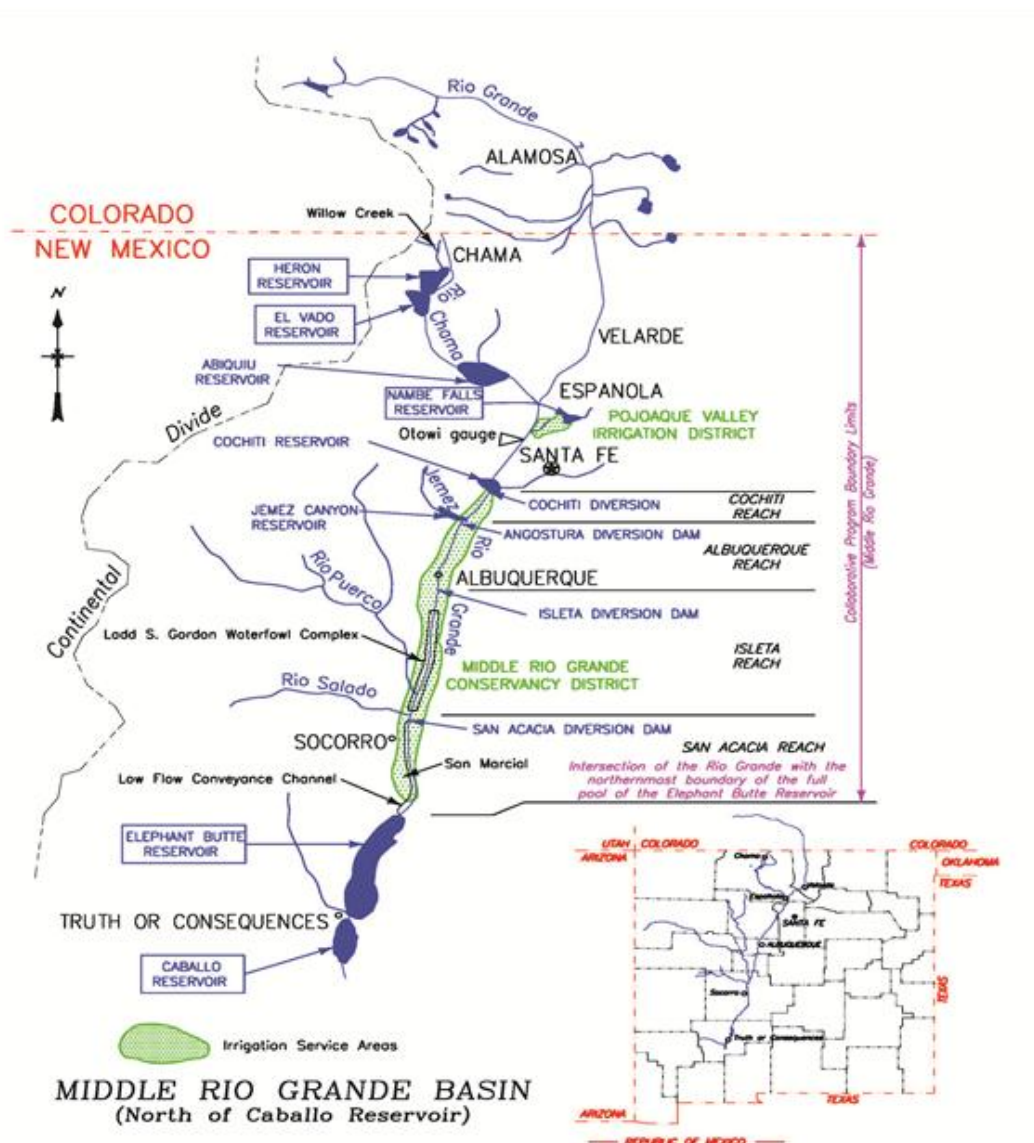
C. RIP Documents

In 2011, the EC directed preparation of additional documents that were needed to describe and implement the RIP. These included a Cooperative Agreement to be executed by participating entities; a Program Document governing the RIP; and an Action Plan identifying activities to be implemented by the RIP over a five-year time frame. An Adaptive Management (AM) guidance document (Adaptive Management Plan Version 1 (AMP-1)) was also produced to assist in implementation of AM throughout the recovery implementation process.

III. Program Scope

A. Program Area

The RIP geographic area (Figure 1) consists of the headwaters of the Rio Chama watershed and the Rio Grande, including tributaries, from the New Mexico-Colorado state line downstream to the intersection of the Rio Grande with the northernmost boundary of the full pool of Elephant Butte Reservoir. Indian Pueblo and Tribal lands and resources within the RIP area will not be included in the RIP without the expressed written consent of the affected Indian Pueblo or Tribe. This definition does not preclude the Program from funding activities outside of this geographic area pursuant to the RIP Governance Procedures in Section IV.B.²



² It is anticipated that certain contributions by NMISC under this RIP will also contribute toward ESA compliance for the Elephant Butte temporary channel which will be addressed in a future consultation.

B. Listed Species and Critical Habitat

The RIP is currently scoped to address two species listed under the ESA: the silvery minnow and the flycatcher. Consistent with the goals of the RIP, the EC may decide to include other candidate, proposed, or listed species at any time in the future.

Silvery Minnow

On July 20, 1994, the Service published a final rule to list the silvery minnow as an endangered species with proposed critical habitat (59 Fed. Reg. 36988-36995).³ The Service initiated a five-year review of the status of the species in 2010 (75 Fed. Reg. 15454-15456). A five-year review considers all new information available at the time of the review.

Critical habitat was designated for the silvery minnow in 1999 (64 Fed. Reg. 36274-36290), with revisions published on February 19, 2003 (68 Fed. Reg. 8088-81 35). Designated critical habitat in the Rio Grande extends through Sandoval, Bernalillo, Valencia, and Socorro Counties, New Mexico generally beginning at Cochiti Reservoir downstream to the utility line crossing the Rio Grande at the upstream end of the Elephant Butte Reservoir pool. The utility line marks the northern boundary of Reclamation's Rio Grande Project. The lateral extent of critical habitat includes those areas bounded by existing levees. In areas without levees, the lateral extent of critical habitat is defined as 300 feet (91.4 meters) of riparian zone adjacent to each side of the river.

The designation also includes a five mile segment of the Jemez River from Jemez Canyon Dam to the upstream boundary of Santa Ana Pueblo, Sandoval County. Pueblo lands in Santo Domingo, Santa Ana, Sandia, and Isleta Pueblos are excluded from critical habitat. The Service considered the Rio Grande around Big Bend National Park in Texas and the Pecos River between Ft. Sumner Dam and Brantley Reservoir in New Mexico as essential to conservation but did not designate as critical habitat.

Flycatcher

A final rule was published in the February 27, 1995 Federal Register to list the southwestern U.S. population of the flycatcher as an endangered species under the ESA with proposed critical habitat.⁴ However, the final rule designating critical habitat for the species range-wide (published on July 22, 1997) did not include the Rio Grande (62 Fed. Reg. 39129-39147) at that time. A proposal to re-designate critical habitat was published October 12, 2004 (69 Fed. Reg. 60706-60786), with a final designation published October 19, 2005 (70 Fed. Reg. 60886-61009). The 2005 final designation of critical habitat defines two units located along the Rio Grande: the

³ The silvery minnow is currently listed as endangered on the New Mexico state list of endangered species, having first been listed on May 25, 1979 as an endangered endemic population of the Mississippi silvery minnow (*Hybognathus nuchalis*).

⁴ The Southwestern Willow Flycatcher subspecies was first listed by New Mexico as threatened in 1988, and then was reclassified as endangered in 1996 (*Empidonax trailii extimus*).

Upper Rio Grande Management Unit which includes 664 hectares (ha) (1,640 acres), encompassing 66 kilometers (km) (41 miles), and the MRG Management Unit which includes 13,410 ha (33,137 acres) along 135 km (84 miles). The Service released a new proposal for critical habitat on August 15, 2011 (76 Fed. Reg. 50542-50629) and designated revised critical habitat on January 3, 2013 (78 Fed. Reg. 344-534). In the upper Rio Grande in New Mexico, the area between the Taos Junction Bridge in Taos County and the southern boundary of the San Ildefonso Pueblo was included in the proposal, but the tribal lands of the Okhay Owingeh, San Ildefonso and Santa Clara Pueblos were excluded in the final designation. Within the Middle Rio Grande Management Unit, critical habitat is designated to include a 180.4-km (112.1-mi) segment of the Rio Grande that extends from below Isleta Pueblo and the Bernalillo and Valencia County line downstream past Bosque del Apache and Sevilleta NWRs and into the upper part of Elephant Butte Reservoir ending in Socorro County about 3.2 km (2.0 mi) north of the Sierra County line, New Mexico (about 14.4 km, 9.0 mi of the upper part of Elephant Butte Reservoir, downstream of the power-line crossing, is included within the designation). There is no critical habitat designated along the Rio Grande any further south.

C. Water Uses and Management Operations

Water uses and management operations as proposed for 2013 ESA consultation coverage and for which the RIP is intended to serve as the conservation measure offsetting or minimizing effects, include the following federal and non-federal agency actions:

1. Reclamation proposes the following water management operations:
 - a. Operation of Heron Dam and Reservoir as part of the SJC Project to store and deliver water to downstream users;
 - b. Operation of El Vado Dam and Reservoir as part of the MRG Project; and
 - c. River maintenance.
2. The U.S. Fish and Wildlife Service's National Wildlife Refuge System (Refuges) proposes the following action:
 - a. Implementation of Bosque del Apache National Wildlife Refuge's Comprehensive Conservation Plan.
3. Non-federal entities propose the following actions:
 - a. The MRGCD proposes the following actions:
 - i. Operation of the MRG Project Diversion Dams for the purpose of delivering water to district lands to meet agricultural demand of lands with appurtenant water rights, including the lands of the Six

MRG Pueblos; and

ii. Operation of irrigation drains and wasteways to return water to the river.

b. The State of New Mexico proposes that the following actions receive coverage, as described more specifically in Reclamation's January 16, 2013 Biological Assessment:

- i. Discretionary actions related to administration of the Rio Grande Compact and surface and groundwater resources in the upper and middle Rio Grande;
- ii. Non-discretionary actions to administer surface and groundwater resources in the upper and middle Rio Grande;
- iii. River maintenance actions; and
- iv. Other legal existing non-federal non-Pueblo water related actions up to an additional 10 cubic feet per second (cfs) of impact on the Rio Grande modeled as if the effects occur at the Albuquerque reach.

D. RIP Activities

The RIP activities are intended to minimize the effects of the actions in Section III.C above for purposes of ESA coverage for those actions and will contribute to the recovery of the species. The RIP may also function as an ESA conservation measure for other existing and future BOs of Program participants, as recognized in Section VI.F.

The RIP activities will address key aspects of species recovery (referred to in the Action Plan as "elements") such as species reproduction and survival, minnow captive propagation and augmentation, and research and monitoring, as described in Section V of this document and detailed in the RIP Action Plan. As described in the Action Plan, these activities will be implemented by entities with actions covered in Section III.C above as well as by other entities participating in the RIP that may or may not have undergone separate ESA consultation on their actions.

IV. RIP Organizational Structure and Governance Procedures

A. Organizational Structure and Membership

The following describes the establishment, roles and responsibilities of committees, members, teams, and staff associated with the RIP, and the membership composition of each group.

1. Executive Committee

The EC, as the governing committee of the RIP, is responsible for all decision-making related to the RIP and for ensuring that the goals of the RIP are achieved in a timely manner. The EC sets policy and directs the work of the RIP including the activities of the Executive Director, Program staff, and advisory teams and committees, and makes assignments to the Independent Science Panel. Primary responsibilities for the EC are detailed in the By-laws [containing proposed revisions]. The EC, through the Executive Director, serves as the primary point of contact for all requests to the RIP. The EC may coordinate with local or regional conservation initiatives and other interests, consistent with the goals of the RIP. The EC will work to resolve any conflicts within the RIP on a timely basis.

The initial EC for the RIP is comprised of all members serving on the EC for the Collaborative Program who have executed the RIP Cooperative Agreement with the Service. If an EC member chooses to withdraw from the RIP, a letter shall be submitted to the EC in accordance with the By-laws. If an EC member's participation in the RIP is essential to implementing a Reasonable and Prudent Alternative (RPA), a Reasonable and Prudent Measure (RPM), or maintaining BO coverage, the withdrawal of such an entity may result in reinitiation of consultation under the ESA related to the applicable concerns.

An entity may apply to become a member of the EC provided there are membership openings available on the EC and such entity submits a letter of interest and signs the Cooperative Agreement.⁵ The EC may consider the following criteria in determining whether to accept an application from another entity to become a member of the EC. An applicant need not meet all criteria, and meeting the criteria does not guarantee an applicant's acceptance as a member of the EC. These criteria shall apply to any entity that reapplies to the EC following a cessation of membership on the RIP. These criteria include, but are not limited to:

- a. Representation of a sizable constituency, for example through public outreach or membership;
- b. Contribution to the non-federal cost share, reported annually including in-kind services;

⁵ The EC is limited to 20 members. The EC shall maintain a wait list of applicants for membership in the event no membership openings are available, and shall consider applications in the order in which they appear in the list.

- c. Ownership of an interest affected by the Program, such as land, water, or other property rights;
- d. Jurisdictional or regulatory responsibility, including sovereignty; and
- e. Commitment to participation.

Decisions whether to accept an application for EC membership shall be made by the EC pursuant to the voting procedures described in the By-laws. Within one week following EC action on an application, the co-chairs will notify the applicant in writing of the EC's decision. EC members shall designate one primary and one alternate member to the EC; this shall be provided in writing to the Executive Director upon an entity's approved membership on the EC. Primary and alternate members of the EC and applicable staff are allowed attendance during closed sessions. All meetings shall allow for public comments and be open to the public with the exception of closed sessions.

2. Non-EC RIP Participants

Other entities may become participants in the RIP even though they are not members of the EC. To become a RIP participant, entities must apply, be accepted in accordance with the By-laws, and sign the Cooperative Agreement. The execution of the Cooperative Agreement commits an entity to participate in the RIP as described in the Program Document.

Participation in the RIP is voluntary, and in no way alters the Secretary of the Interior's ultimate responsibility for administering the ESA, nor shall it affect the authorities and responsibilities of the Federal agencies, Tribes, State of New Mexico, and districts to manage and administer their water and fish and wildlife resources. Entities must make independent judgments to determine whether to be a RIP participant and regarding their ability to perform RIP activities.

If a RIP participant chooses to withdraw from the RIP, a letter shall be submitted to the EC which describes its reason(s). If a RIP participant's activities in the RIP are essential to implementing an RPA or RPM, or maintaining BO coverage, the withdrawal of such entity may result in reinitiation of consultation under the ESA related to the applicable concerns.

3. Executive Director and Staff

The RIP will have an Executive Director, a Science Coordinator, and such other staff as required.⁶

a. Executive Director

⁶ It is anticipated that the RIP will be managed under a third-party management structure implemented through a contract between funding entities and an independent financial management entity (FME). The anticipated role of the FME is described in Attachment A.

The Executive Director shall be selected by and serve at the pleasure of the EC. The Executive Director is expected to be a senior level professional with supervisory and program management experience. He or she shall carry out the directions of the EC. The Executive Director will prepare a staffing plan that is consistent with needs under the 5-year RIP Action Plan and includes descriptions of positions, number of positions, and personnel budget, for presentation to and approval by the EC annually. Staff employees or contractors may include scientists, engineers, contract specialists, public affairs specialists, etc. as necessary and provided for by the EC. The Executive Director will only fill positions approved by the EC. The Executive Director will supervise those Program staff and oversee contractors as determined by the EC and as consistent with any federal contracting regulations applicable to those contractors.

In addition to the reporting requirements described in Sections V and VI below, the Executive Director will prepare quarterly expenditure, budget, and progress reports, briefing papers for a variety of audiences, and maintain the records of the RIP. The Executive Director will coordinate updates to the Long Term Plan, Action Plan, and Annual Work Plan as directed by the EC. The Executive Director will coordinate the EC meetings, prepare meeting documents and briefing papers for the EC, and be responsible for distribution of information packets and preparation of the agenda with the approval of the EC Co-Chairs. The Executive Director shall be responsible for contract management, cost-share oversight, and implementation of EC directives and policies, including managing and tracking implementation of the Annual Work Plan, as well as preparation of the Annual RIP Report. Fundamental to the Executive Director position is the coordination of activities of the RIP teams; communication with local governments, Pueblos, the public, media, and federal and state agencies; and provision of administrative support for the Independent Science Panel. The Executive Director and staff will also prepare solicitation packages for EC approval, execute contracts and agreements with successful bidders, review and approve invoices for payment, and perform other duties as assigned by the EC.

b. Science Coordinator

The Executive Director will hire a Science Coordinator in consultation with the EC. The Science Coordinator is expected to be a senior level scientist with program management skills. The Science Coordinator shall:

- a. Oversee all contracts related to science and adaptive management to ensure sound scientific principles are followed and information is being evaluated and assimilated into RIP decision making as appropriate. This will entail interaction with contractors and others on projects to assure those are being completed in accordance with their specified scopes, deliverables, schedules, and budgets.

- b. Be the non-voting chairperson of the Adaptive Management Committee. The Science Coordinator shall provide the directions of the EC to the Committee, support and coordinate its activities, and assign tasks as directed by the EC. The Science Coordinator shall make recommendations to the Executive Director to present to the EC regarding the formation of technical and science-related implementation teams under the Adaptive Management Committee to accomplish specific tasks in the Action Plan.
- c. Report to the Executive Director on an ongoing basis, and to the EC if requested by the EC through the ED. The Science Coordinator shall coordinate with the ED to ensure that products are prepared on a timely basis each year, including the RIP Annual Progress Report, the RIP Action Plan updates, and the Annual Work Plan. All products produced by or under the direction of the Science Coordinator are subject to approval by the Executive Director or EC, as determined by the EC.

4. EC Committees and Implementation Teams

The RIP will seek to conduct its tasks through a minimum number of committees and teams to meet the goals of the RIP. The EC will approve membership of all committees and implementation teams according to expertise in line with the needs of the group. The EC shall provide clear direction on the goals, objectives, and activities of the committees and teams, including expectations, responsibilities, processes, and reporting requirements. The Executive Director will develop charters addressing membership, meeting procedures, and decision-making protocols, for approval by the EC. Membership may consist of EC members, Program staff, staff from EC members/RIP participants, individual(s) obtained through contracts or financial assistance agreements, and others, consistent with the charters. All committee and team meetings chartered by the EC are open to the public, and input is encouraged.

a. Adaptive Management Committee and Implementation Teams

The Adaptive Management Committee will implement the technical/scientific work under the RIP. This committee does not have a decision-making role except as delegated by the EC.

The Adaptive Management Committee will serve as the science coordination team, whose work shall be guided by the Action Plan. The Science Coordinator shall be the non-voting chairperson of this committee. The Adaptive Management Committee shall be responsible for compiling and analyzing available science, prioritizing science needs, identifying uncertainties, developing hypotheses, and making recommendations for acquiring additional data and information. This team will ensure an appropriate balance of assessments by designing proposed adaptive management tests, studies and long-term monitoring, implementing such assessments as

directed, monitoring studies to determine effectiveness, reporting results to the Science Coordinator, and making management activity recommendations to the Science Coordinator and Executive Director, for approval by the EC.

The EC may approve the formation of technical and science-related implementation teams under the Adaptive Management Committee to accomplish specific tasks in the Action Plan. These teams may involve multiple areas of expertise as appropriate to identified issue(s), such as those concerning habitat, propagation and augmentation, species management in the river, or PVA. Such teams may be directed to develop project plans, budgets, and scopes of work, and to complete specific on-the-ground projects and deliverables. These teams will report to the Science Coordinator and to the Adaptive Management Committee as needed. Quarterly adaptive management meetings attended by the Executive Director, Science Coordinator, Adaptive Management Committee, and implementation team members are intended to assist in further integration and coordination of work efforts by these groups.

One of the teams envisioned is the Action Team. The Action Team will have a multi-agency, interdisciplinary focus and will evaluate species needs, evaluate available resources, and develop proposed annual plans and other recommendations on water and species management pursuant to the tasks in the Action plan, including modifications as needed to meet actual conditions. It is anticipated that the Action Team will conduct evaluations and develop recommendations in advance of spring runoff each year, and will evaluate results at the end of each year in consideration of long-term results and trends. The Science Coordinator will serve in an oversight role to the Action Team.

b. Other Committees

The EC may also establish other stakeholder or policy committees as needed to provide recommendations on issues consistent with the goals of the RIP.

5. Independent Science Panel

The Independent Science Panel (ISP) will, in coordination with the EC and ED, annually provide the EC with independent feedback on technical/scientific issues, input to adaptive management, data synthesis, peer reviews, and priority recommendations. As directed by the EC, the ISP may perform other review-based duties on selected aspects of the RIP that warrant independent evaluation. For example, there may be ISP reviews of habitat restoration projects, species management, adaptive management assessments, and flow augmentation, and comprehensive programmatic reviews as needed. Procedures and specifics for the selection and composition of the panel and the conduct of its reviews will be drafted by the Executive Director and approved by the EC.

B. Governance Procedures

1. Decision Making

The EC makes decisions regarding Program policy and management, including budgets, annual work plans, procedures, organizational structure, and membership. Decisions may be made only when a quorum of EC members is present, meaning that 50 percent or greater of all EC members are present. EC meeting agendas will specify decision items, and EC members and their alternates will be provided with appropriate background material related to each voting decision identified on the agenda. Meeting procedures applicable to the EC are set forth in the By-laws.

All designated members of the EC are allowed a single vote during decision-making procedures. The EC shall seek consensus in reaching decisions. In lieu of consensus, a decision may be deferred to the next scheduled EC meeting. At such meeting the decision may be approved by a super majority of the EC (75 percent) pursuant to the By-laws. If a non-consensus decision is made, the minority may submit a report to the EC for its administrative record. Certain decisions require unanimous consent, as noted in Section IX of the Program Document.

2. Budget Subcommittee

The federal action agencies reserve the right to ensure appropriate use of federal funds consistent with applicable laws and regulations. The other EC members reserve the right to ensure appropriate use of their respective funding contributions consistent with applicable laws, regulations, and authorities. In order to permit those government agencies with regulatory, procurement or property interests in the Action Plan, Annual Work Plan and associated budgets to identify and resolve potential conflicts to avoid delay in the budget process, there shall be a subcommittee of the EC called the Budget Subcommittee. The Executive Director shall be the non-voting chairperson of the Budget Subcommittee, and its membership shall consist of the EC members or alternates for Reclamation, the Corps, the Service, NMISC, and MRGCD. The EC may adjust the membership as appropriate. The members of the Budget Subcommittee shall review draft updates to the Action Plan, Annual Work Plan and associated budgets and make a consensus recommendation for approval by the EC. If any part or subpart of the Action Plan or Annual Work Plan and associated budgets does not receive unanimous consensus, that part or subpart shall be temporarily removed from the Action Plan and the remaining parts shall be recommended for approval by the EC. The members of the Budget Subcommittee shall endeavor in good faith to resolve any objections to any part or subpart of the Action Plan or Annual Work Plan and associated budgets that have been temporarily removed. If such objections are successfully resolved and consensus is reached, the Budget Subcommittee may subsequently recommend that part or subpart for approval by the EC. A quorum of the Budget Subcommittee shall consist of two federal agency members and two non-federal agency members.

V. Implementation of the RIP

The RIP activities will be implemented by drawing on information provided in the plans described below.

A. Long Term Plan

The LTP is a guidance document providing an inventory of possible beneficial activities that may be implemented by the RIP to meet its purposes and goals.

An LTP was approved by the EC in November 2006. The LTP is being revised based on the framework of the silvery minnow and flycatcher recovery plans issued by the Service in 2010 and 2002, respectively. Addition of future activities into the LTP will incorporate new information on the hydrology of the MRG and on the life history of the species and will consider any revised recovery plan actions. The LTP will also incorporate adaptive management pursuant to Section VII.

The LTP will consist of categories of RIP activities including: physical habitat restoration and management; water management; predator/non-native control; population augmentation/propagation (silvery minnow only); water quality management (silvery minnow only); research, monitoring, and adaptive management; policies and laws; public information and outreach; and Program management. Goals, activities, and tasks will be identified under each of the categories. The LTP will present a long-term schedule that will provide general guidance as a roadmap for the sequence and approximate timing of activities over an extended period of time. The LTP does not contain specific commitments by the RIP participants, as those will be identified in the RIP Action Plan approved by the EC, discussed below. While some RIP participants do not currently agree upon the criteria in the Service's current species recovery plans nor upon all activities and tasks in the LTP, the participants will seek to come to agreement on these activities and tasks to ensure that implemented activities advance the accomplishment of the RIP's goals.

B. RIP Action Plan

The RIP Action Plan will identify the specific activities and tasks approved by the EC for implementation by the RIP over a five-year planning horizon. The Action Plan will draw its activities and tasks from the inventory of beneficial activities in the LTP and information developed through the adaptive management process.

The RIP Action Plan will be updated on an annual basis for the next five-year planning horizon in a manner consistent with the RIP's purposes and goals. The annual update shall be completed by March 1 of each year so as to assist in annual work plan development, budget decisions, and activity implementation. The annual update of the RIP Action Plan shall consider implementation of additional activities from the LTP, new information from the adaptive management process, input from the Service regarding adjustments to the RIP Action Plan activities or metrics, and input from other RIP evaluations concerning improvements to or

modification of the management activities. All updates or revisions to the RIP Action Plan shall be approved by the EC.

C. Annual Work Plan

The Executive Director, in coordination with the Science Coordinator, will develop an Annual Work Plan for EC approval that tiers from the RIP Action Plan and that reflects the specific projects, activities and tasks to be implemented by the RIP during the upcoming federal fiscal year. The Annual Work Plan will include detailed budgets, schedules, and required deliverables, and will be prepared for approval by the EC in advance of the fiscal year's contracting deadlines. The Executive Director shall consider recommendations from the Independent Science Panel, the RIP Adaptive Management Committee and implementation teams, and members of the EC (including input from the Service regarding necessary components in the Annual Work Plan to help ensure ongoing ESA compliance) in formulating a proposed Annual Work Plan that best meets the goals and objectives of the RIP for the upcoming year.

The EC and its Budget Subcommittee will have up to a three-month review and approval process for the Annual Work Plan, to be commenced no later than January 30 and completed by April 30 of each year. To facilitate this, the Executive Director will include a draft update to the RIP Action Plan and a draft Annual Work Plan as part of the RIP Annual Progress Report that is prepared each November pursuant to Section VI.C. Upon approval of the Annual Work Plan by the EC, the Executive Director will initiate contracting, administration and implementation of projects under the Plan. If the Annual Work Plan is not approved by the EC through the governance procedures of the RIP and a compromise cannot be reached, the questionable project or projects will be tabled for the year or, if possible, funded through a separate mechanism.

Thus, the RIP will implement activities identified in an Annual Work Plan that tiers from the RIP Action Plan. Those documents will draw from the LTP, which is based on the framework of the species recovery plans. The EC will update RIP documents in a manner consistent with the RIP's purposes and goals and in consideration of new information from the adaptive management process, input from the Service, and other RIP evaluations. These linkages are designed to assure that the RIP provides meaningful benefits to the species, functions as an ESA conservation measure, as relevant, and continues to serve as the ESA compliance vehicle under the Service's 2014 BO(s) for the actions identified in Section III.C.

VI. Principles for ESA Compliance

A. Regulatory Certainty under the RIP

The signatories to the Cooperative Agreement intend that the inclusion of the RIP in the consultations for actions referenced in Section III.C. will provide a mechanism for ESA compliance⁷ and provide regulatory certainty under the ESA for those actions. The RIP may also function as an ESA conservation measure if proposed by Program participants for existing and future BOs, as referenced in Section VI.F.2.

Nothing herein shall limit any entity in fulfilling its independent statutory obligations under the ESA. Nor shall anything herein change the legal standards or regulatory requirements under Section 7 of the ESA applicable to any entity's proposed actions.

B. Sufficient Progress Determination

The Service will make an annual determination by January 15 of each year of whether the RIP is making sufficient progress towards recovery of listed species. A determination of sufficient progress ensures continued ESA compliance for covered actions. The assessment will consider factors⁸ that address the reduction of threats to the species and the status of the species and their habitats. These factors are broad categories that will be identified in the BOs, and are intended to remain consistent as long as the BOs remain in effect. Within the first nine months of RIP implementation, the EC will develop metrics by which the Service will assess these factors. The metrics will address:

- implementation of tasks under the RIP designed to reduce threats to the species and improve their status;
- measurements of the status of the species, including the status of designated critical habitat (ability to maintain the PCEs);
- indications of positive population response and improvement in habitat for the species, or reduction in the threat of immediate extinction; and
- implementation of the Action Team's annual recommendation as approved by the EC.

⁷ "ESA compliance" for entities referenced in Section III.C. that include the RIP as part of their proposed actions will include: (1) the RIP serving as the conservation measure minimizing effects of actions referenced in Section III.C.; (2) a finding that such actions are not likely to jeopardize listed species or destroy or adversely modify their critical habitat under Section 7 of the ESA [note: if the Service concludes that the Proposed Action including the conservation measure will cause jeopardy or adverse modification, then a reasonable and prudent alternative would be developed or the Proposed Action modified such that jeopardy and adverse modification are avoided]; and (3) the Incidental Take Statement supporting the appropriate BO(s) associated with these actions providing the reasonable and prudent measures exempting those actions from ESA Section 9 take prohibitions. The composition of the measures will be identified during formal Section 7 consultation. It is recognized that the RIP may also function as an ESA conservation measure for existing and future BOs of Program participants, as recognized in Section VI.F.2.

⁸ These factors relate to the implementation of recovery activities and species status, population responses, captive population, threat reduction, flow, and habitat.

These metrics will be used by the Service as its criteria for an annual sufficient progress determination. These metrics may change from year to year, though they remain supportive of the broad sufficient progress factors stated in relevant BOs.

The majority of RIP activities tier from species recovery plans. Because the RIP will implement recovery activities identified in an annual work plan designed to reduce threats to species and their habitat, the RIP expects to achieve sufficient progress towards recovery.

If there are circumstances that undermine the EC's ability to implement priority RIP activities on schedule, it may not be possible to fully meet all sufficient progress factors and metrics considered. A deficiency that is temporary or is limited to a single or few metrics may not result in a lack of overall progress toward recovery. If it appears to the Service that the metrics are not being met, the Service will work in collaboration with the RIP Adaptive Management Committee and Action Team, as appropriate, to identify solutions. If, after pursuing such efforts, the Service makes an initial determination that the RIP is not making sufficient progress, the Service will notify the EC and request its assistance in resolving the situation. If such attempts at resolution are unsuccessful, the Service may document the situation regarding the lack of sufficient progress and make a written request of the EC to take corrective action. It is fully intended that it will be feasible for the EC to take whatever corrective actions are needed to achieve sufficient progress and that resolution will occur. If the potential deficiency towards achieving progress to recovery is not resolved by the EC, it is recognized that the Service may conclude that sufficient progress toward recovery has not been maintained. Lack of sufficient progress may or may not trigger re-initiation of ESA consultation. Failure of the RIP to continue to minimize the effects of the covered actions may trigger reinitiation of consultation related to the applicable covered action(s). The Service and federal action agencies agree to work expeditiously on any such re-initiation. The Service further agrees to consider the benefits from the potential continuation of contributions by RIP entities during any reinitiated consultations, including in the development of new reasonable and prudent alternatives or other measures in new or revised BO(s).

1. Reduction of Threats

The Service has identified threats to the species in its species listing rules and in the recovery plan for each species. Each recovery plan includes recovery actions that are intended to reduce or eliminate the threats. The RIP Action Plan draws from the LTP inventory which is based on the framework of the Service's silvery minnow and flycatcher recovery plans. The RIP Action Plan activities are designed, in part, to reduce the threats to the species identified in those documents. The Action Plan activities and associated metrics⁹ will be approved by the EC, and will be updated on an annual basis pursuant to the procedures in Section VI.D below. It is anticipated that reduction of threats will be accomplished based upon timely implementation of

⁹ The metrics may be defined quantitatively or qualitatively. They will be defined in quantitative terms to the extent possible and appropriate.

the recovery activities in the RIP Action Plan as validated by monitoring and modified through adaptive management.

2. Status of Species

A priority activity under the RIP Action Plan is to develop a silvery minnow monitoring program for the RIP by the end of the second year of the RIP that builds upon existing population and genetics monitoring efforts. This priority activity recognizes that the current monitoring protocols are not sufficiently precise and sensitive to be endorsed by some members of the EC for purposes of measuring species response to specific management activities and progress toward recovery on a seasonal or annual basis.

Based upon the RIP's silvery minnow monitoring program, the EC will work to develop demographic and/or other metric(s) to assess species status trends and progress toward recovery under the RIP. During the first two years of RIP implementation, the EC will consider the results of ongoing monitoring in its implementation of activities and annual update of the RIP Action Plan, but the Service will not use CPUE demographic data in its sufficient progress evaluation.

3. Set of Metrics

The EC will work together during the first nine months of RIP implementation to determine appropriate and scientifically supportable metric(s) that the Service will use to assess annual sufficient progress (see Section V.I.A above) including status of the species. In doing so, the EC will seek to refine and further quantify the factors identified in the Service's proposal and consider potential use of one or more of those as sufficient progress metrics.

It is recognized that the effects of implementing certain activities under the RIP's Action Plan may not be evidenced in the near-term; that the EC is unable to control all variables related to the hydrology of the MRG or the biology of the species; and that circumstances beyond the control of the EC will not be considered to the detriment of the RIP in the Service's sufficient progress evaluation.

C. Annual RIP Report

The Executive Director will prepare a RIP Annual Progress Report by November 1 of each year summarizing the status of the metrics and implementation efforts under the RIP Action Plan, for approval by the EC. The Annual Progress Report should be accompanied by draft updates to the RIP Action Plan and a draft Annual Work Plan in order to provide sufficient lead time for EC review and approval of those documents pursuant to Section V. The Service will consider the Annual Progress Report in its annual evaluation of sufficient progress towards recovery and will, as a member of the EC, identify changes, if any, it believes necessary as part of the annual updating process.

D. Association with Prior Biological Opinions

Federal water management action agencies historically have implemented measures to avoid jeopardy and adverse modification of critical habitat for two listed species. Measures included in prior BOs, and the concerns they were designed to address (related to the species, habitat, and reduction of threats), were considered in development of the initial Action Plan activities and tasks for the RIP. These considerations will also factor into future updates of the Action Plan and into the Action Team's annual process to develop recommendations for addressing the species needs for a given year based on the status of the species, available resources, hydrologic forecasts, and advances in scientific knowledge that inform decision making. It is anticipated that BOs relying on RIP activities will afford flexibility to make continued adjustments to the conservation measures that are implemented by the RIP in furtherance of its purposes and goals.

E. Reliance on the RIP for ESA Compliance

Section 7(a)(2) of the ESA requires federal agencies to ensure their actions are not likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat (see 50 C.F.R. 402.01). Jeopardy occurs when an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced. This ESA requirement also includes any non-federal actions that have a federal nexus, where a federal agency funds, authorizes, or carries out the action in whole or in part. Section 9 of the ESA prohibits federal and non-federal parties subject to the jurisdiction of the United States from "taking" endangered species. In the MRG Basin, a variety of federal and non-federal activities related to water operations, water management and use, river maintenance, and flood control are subject to the ESA. The term "ESA coverage" or "coverage" as used in this Program Document includes obtaining both an exemption from prohibitions for incidental take through the Section 7 formal consultation process as well as assurance that entities relying on the RIP as their conservation measure pursuant to Section VI.F. are not likely to jeopardize listed species or destroy or adversely modify critical habitat.

Compliance with BO(s) that rely on the RIP as the conservation measure for actions referenced in Section III.C. will convey ESA coverage for those actions. For any federal or non-federal party to receive ESA coverage through the BOs, that party's actions must be assessed in the effects analysis of the biological assessments. For non-federal actions, there must also be a link to the appropriate responsible federal agency for providing that coverage. Participation in the RIP or as an activity interrelated or interdependent to the Proposed Action can provide such a nexus.

Signatories who have relied on the RIP for ESA compliance may withdraw from the RIP upon a 90-day written notice to the other signatories and seek ESA compliance through other avenues. Signatories undertaking or proposing to undertake any activity that may affect MRG endangered

species are not required to rely on the RIP for purposes of ESA compliance. Non-federal signatories' reliance on the RIP shall be voluntary. In the event an entity chooses not to so rely, or chooses to discontinue reliance on the RIP in the future, the Service will not consider the RIP as the means for ESA compliance for such entity. An entity withdrawing from the RIP may trigger reinitiation of ESA Section 7(a)(2) consultation.

F. ESA Compliance Protocols for Individual Actions

1. Section 7 Consultation documentation procedures for covered actions

Consultation has been completed for actions referenced in Section III.C. For entities that rely on the RIP, ESA compliance is provided, so long as the RIP as addressed in the associated BO(s) adequately minimizes the effects of the actions, the proponent of the action signs the Cooperative Agreement with the Service if not already a signatory to the Cooperative Agreement, and the RIP is maintaining sufficient progress toward recovery as determined by the Service pursuant to the procedures in Section VI.B above.

Federal action agencies may choose to request and obtain confirmation from the Service of coverage for such individual actions, described in the preceding paragraph, upon submission of documentation establishing that the action is within the scope of actions covered by the BO(s) and that the proponent is a signatory to the Cooperative Agreement.

2. MRG Section 7 Consultation procedures for other actions

Additional actions within the Program action area (i.e., those actions not covered in Section VI.F.1 above) may use the RIP when undergoing separate ESA section 7 consultations as content for conservation measures to minimize the effects of those actions or to provide RPAs or RPMs. For these additional actions, any RPAs and RPMs must begin implementation before the impact from the action occurs. If the Service finds during a separate section 7 consultation that RIP activities are sufficient to facilitate ESA compliance for an additional water management action, the biological opinion for that additional action will identify those conservation measures, if any, and identify the RIP activities to serve as the offsetting or minimization measures for any RPAs and RPMs. If the Service finds that RIP activities are not able to offset impacts of the additional action and/or are not able to provide content for any RPAs and RPMs related to the additional water management action, the biological opinion for this additional action will be written to identify which activity(-ies) would need to be incorporated into the LTP, the RIP Action Plan, and/or the Annual Work Plan and implemented to provide coverage for the additional action. If this occurs, the Service (with the consent of the Federal action agency(-ies) and any Applicant(s)) will notify the RIP's EC in writing, identify the additional beneficial activity needed, and provide the EC an opportunity to review the needed activity and incorporate the activity into the LTP, the RIP Action Plan and/or the Annual Work Plan. If the EC elects not to incorporate the new activity, the Service will work with the Federal agency(-ies) and any Applicant(s) involved for that additional water management action to ensure compliance with

ESA Section 7 through means other than the RIP. Coordination with the EC will not alter the timeframe for consultation.

Because water in the MRG is fully appropriated, when considering additional water-related management actions, only water projects or actions that result in no new net depletions may be considered within the context of the RIP and receive ESA compliance pursuant to the procedures described in this subsection VI.F.2. The Service will also consider whether the anticipated success of the RIP in contributing toward ESA species recovery is compromised as a result of an additional water management action under consideration. It is recognized that the determination of whether RIP activities provide RPAs and RPMs for such actions is solely the responsibility of the Service.

Endorsed by EC July 18, 2013

VII. Adaptive Management

A. Role of Adaptive Management

1. The RIP intends to use adaptive management as a structured and systematic approach for designing, implementing, monitoring and evaluating management actions to maximize learning about critical scientific questions and uncertainties that affect management decisions regarding the use of Program resources to achieve the goals of the RIP.
2. Learning resulting from adaptive management activities and monitoring will be used as a tool to improve management decisions in order to more quickly and cost-effectively attain RIP objectives.
3. Hypothesis-testing and learning over time pursuant to these adaptive management procedures and as contemplated by BOs which rely on the RIP as the means for ESA compliance will allow for adjustment of RIP management activities in the LTP, the RIP Action Plan, the Annual Work Plan, and other components of the RIP, as appropriate over time, without automatically requiring reinitiation of consultation.

B. Science and Management Coordination Meetings

There will be quarterly Adaptive Management Meetings attended by the Executive Director, Science Coordinator, and members of the Adaptive Management Committee and implementation teams described in Section IV.A.4. Each implementation team will present a summary of its progress quarterly. Technical recommendations can be made and vetted at these meetings. Members of the EC will be invited to observe at these quarterly meetings.

C. AMP-1 and Next Steps in Refining Adaptive Management

1. AMP-1 provides a potential framework for the development of a scientifically defensible adaptive management design specific to the RIP. It also includes a set of principles for designing adaptive management actions and examples of management actions and appropriate monitoring plans. As an important priority, the RIP will use guidance in AMP-1 and the adaptive management experience of this and other programs to develop a formal Adaptive Management Plan, ideally within the first year of the RIP's existence. The RIP will identify specific management activities, monitoring, and research that will be used to evaluate and improve management decisions and will identify the decision-making framework for flexible water management and non-flow related activities that provide for meeting the RIP goals.
2. Adaptive management is not intended as a broad-based research program. In keeping with the purpose of adaptive management, only learning relevant to management decision-making will be sought through the adaptive management process.

3. Adaptive management will be implemented within the existing financial and hydrological resources available to the RIP.

Endorsed by EC July 18, 2013

VIII. Data and Peer Review

A. Transparency for Data and Science Used by the RIP

1. In order for the RIP to achieve its goals, it is imperative that best available scientific information be considered in management decision-making.
2. All RIP participants will abide by the Scientific Code of Conduct for the Middle Rio Grande Endangered Species Collaborative Program, which has been approved by the EC. This requirement applies to all third-party management entities and staff, to the Independent Science Panel, and to the Cooperative Agreement signatories and their representatives and contractors.
3. All contracts, grants, or other vehicles pursuant to which scientific activities may be conducted on behalf of the RIP shall require that all data collected in carrying out the scientific activities be made available to the RIP in a form accessible and usable by the RIP concurrent with the submission of the deliverables.
4. All data used in management or sufficient progress decisions shall be made available to the RIP upon request in a form accessible and usable by the RIP.
5. The RIP, through the EC or as delegated by the EC, will develop policies and procedures by which data is collected, stored, and made available for the RIP.

B. Peer Review Process

1. Peer review is important to a scientifically-based resource management program such as the RIP. The EC may submit any RIP activity or management decision option for peer review.
2. The EC will adopt formal written Internal Review Procedures [placeholder].
3. The EC will also adopt a formal External Peer Review Process for the RIP [placeholder]. In the interim, the RIP will follow the Interim External Peer Review Process set forth in Attachment B.

IX. Program Modification

A. Amendment of the RIP Program Document

1. The RIP Program Document has been approved and adopted by all of the signatories to the Cooperative Agreement [pending]. Modifications to the RIP Program Document may be made by following the RIP governance and decision-making protocol, as referenced in section IV.C, without requiring modification of the Cooperative Agreement.
2. Notwithstanding subsection (1) above, the following changes to the RIP Program Document will require unanimous consent of the EC members:
 - a. A change to provisions which recognize that the RIP may not impair state water rights of individuals or entities or federal reserved water rights of individuals and entities; federal or other water rights of Indian nations and Indian individuals, or Indian trust assets; San Juan-Chama Project contractual rights; or the State of New Mexico's ability to comply with Rio Grande Compact delivery obligations. Also a change to the provision of the RIP recognizing that water to be acquired or otherwise made available must be from a willing donor, seller or lessor.
 - b. A change to Section VI of the Program Document regarding the principles governing ESA compliance and regulatory predictability under the RIP.

X. RIP Budget Guiding Principles

It is anticipated that funding to the RIP will be provided by entities to address actions commensurate with the ESA coverage they will receive under this RIP. Funding provided can be in the form of cash or in-kind contributions.

Under Reclamation's current authorizing language non-federal entities are required to provide a 25 percent cost share, which can be in the form of in-kind contributions on all Collaborative Program activities, except Reclamation's water acquisitions and administrative expenses. Historical funding levels by Federal and non-federal entities are found in Table 1. Reclamation's funding levels include funds to acquire supplemental water as referenced in Section I.C.

Proposed RIP budget categories with Reclamation's average funding levels are found in Table 2. These budget categories and spending percentages are intended to assist the Executive Director in preparing the annual work plan and budget. The historical funding levels are provided as a starting point for budget development based on the foreseeable needs of the RIP and not as hard targets for spending. It is anticipated that additional RIP participants may or may not affect these budget categories and levels of funding. Refer to the Action Plan for additional information on proposed funding levels by activity and commitments by RIP participants.

Table 1 – Historical Middle Rio Grande Collaborative Program Funding Levels

| Year | Amount in Dollars (US) | | |
|----------------|------------------------|------------------|-------------------|
| | Federal | | Non-Fed |
| | Reclamation | USACE | |
| 2001 | 5,688,000 | NA | 588,965 |
| 2002 | 16,000,000 | NA | 676,315 |
| 2003 | 13,467,000 | NA | 2,119,560 |
| 2004 | 10,070,671 | NA | 1,112,419 |
| 2005 | 10,185,020 | NA | 1,361,120 |
| 2006 | 12,619,000 | NA | 1,662,484 |
| 2007 | 14,189,580 | NA | 2,133,267 |
| 2008 | 16,010,000 | NA | 2,353,754 |
| 2009 | 12,769,000 | 196,000 | 1,451,656 |
| 2010 | 10,687,000 | 2,981,686 | 1,292,156 |
| 2011 | 11,252,000 | 2,469,979 | 111,605 |
| 2012 | 9,524,000 | 2,353,230 | 364,306 |
| Total | 132,937,271 | 5,647,665 | 14,863,303 |
| Average | 12,085,206 | 1,882,555 | 1,351,209 |

Table 2 – RIP Budget Categories with Reclamation's 2008-2012 Funding Levels

| Budget Category | Percent of Total Budget |
|--|-------------------------|
| Program Management | 14% |
| Propagation and Augmentation of Rio Grande Silvery Minnow | 12% |
| Water Management for Rio Grande Silvery Minnow Spawning and Post-Spawning | 42% |
| Habitat Restoration and Infrastructure Projects for Rio Grande Silvery Minnow Spawning and Post-Spawning and for Flycatcher Breeding Areas | 14% |
| Research, Monitoring and Adaptive Management assessments | 18% |

Attachments

- A. FME description
- B. Interim External Peer Review Guidelines

Endorsed by EC July 18, 2013

4. RIP Action Plan



Middle Rio Grande
Endangered Species
Collaborative Program
Recovery
Implementation
Program

Final Draft
Action Plan

Endorsed by EC July 18, 2013

Contents

| | | |
|-----------|--|----|
| Part I. | Introduction | 2 |
| I.1 | Purpose of the Action Plan..... | 3 |
| I.2 | Organization of the Action Plan..... | 4 |
| I.3 | Formulation of Elements, Actions, and Tasks | 4 |
| I.4 | Tools and Strategies | 6 |
| I.5 | Drought Management and Other Extreme Contingencies | 7 |
| I.6 | Adaptive Management | 8 |
| Part II. | Elements, Actions, and Tasks | 10 |
| II.1 | Elements for Rio Grande Silvery Minnow | 11 |
| II.2 | Elements for Southwestern Willow Flycatcher | 12 |
| II.3 | RIP Management Elements | 13 |
| II.4 | Estimated Costs | 14 |
| Part III. | Sufficient Progress Determination..... | 15 |
| III.1 | Process for Metrics Formulation..... | 15 |
| III.2 | Sufficient Progress Metrics..... | 17 |

Tables

| | | |
|----------|--|----|
| Table 1. | Estimated Funding Levels for Action Plan Implementation | 14 |
| Table 2. | Examples of types of Metrics to be utilized after interim period | 16 |

Appendices

Appendix

- A Table of RIP Elements, Actions, and Tasks for 2014 – 2018

Acronyms

| | |
|----------------|--|
| AM | adaptive management |
| ABCWUA | Albuquerque Bernalillo County Water Utility Authority |
| BDANWR | Bosque del Apache National Wildlife Refuge |
| BO | Biological Opinion |
| | |
| | Collaborative Program Executive Committee |
| ELOHA | Ecological Limits of Hydrologic Alteration |
| ESA | The Endangered Species Act of 1973, as amended (16 U.S.C. 1531 <i>et seq.</i>) |
| flycatcher | Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>) |
| LTP | Long-Term Plan |
| Metrics | Sufficient Progress Metrics |
| MRG | Middle Rio Grande |
| MRGCD | Middle Rio Grande Conservancy District |
| NMISC | New Mexico Interstate Stream Commission |
| Program | Middle Rio Grande Endangered Species Collaborative Program |
| PVA | population viability analysis |
| RIP | recovery implementation program |
| RPA | reasonable and prudent alternative |
| RPM | reasonable and prudent measure |
| Reclamation | Bureau of Reclamation |
| Service | U.S. Fish and Wildlife Service |
| silvery minnow | Rio Grande silvery minnow (<i>Hybognathus amarus</i>) |
| USACE | U.S. Army Corps of Engineers |

Part I. Introduction

The Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program or Program) has directed efforts to pursue implementation of the Collaborative Program through the structure of a recovery implementation program (RIP). The Executive Committee (EC) of the Collaborative Program has engaged in the development of the RIP's governance and structure (Program Document) and has prepared an agreement with the Service (Cooperative Agreement) for commencement of the RIP (links will be provided). The Program Document should be referred to for descriptions of the roles and responsibilities of the RIP's committees, groups and teams, including those of the Executive Director and the Science Coordinator. The Adaptive Management Committee and the Action Team are the primary groups that will be addressing the technical and science-based activities described elsewhere in this Action Plan. The Action Team will provide recommendations regarding the annual needs of the species. The committees, teams, and any subgroups will serve at the direction of the EC, as will the Executive Director and staff.

In addition to the governing documents, the EC will rely on three main documents to plan and implement activities to benefit the Rio Grande silvery minnow (*Hybognathus amarus*) (silvery minnow) and the Southwestern Willow Flycatcher (*Empidonax traillii extimus*) (flycatcher): the Long Term Plan (LTP), the Action Plan, and the Annual Work Plan.

- The LTP is a reference document that provides an inventory describing potential beneficial activities that may be implemented by the RIP to meet its purposes and goals.
- The Action Plan tiers off the LTP and includes the activities, endorsed by the Program parties that are projected to be implemented during the first five years after the RIP is established. The Action Plan is expected to be updated on an annual basis, with each update covering the next five years of RIP activities.

I.1 Purpose of the Action Plan

The Collaborative Program signatories and other participants have agreed that improving cooperation and increasing collaborative partnerships in the development and implementation of RIP activities is a shared vision. This Action Plan was developed by the Program to improve its ability to achieve this vision. The Action Plan has a five-year planning horizon that identifies substantive RIP elements, actions, and tasks along with tools and strategies proposed to meet the purpose and goals of the RIP. The substantive elements, actions, and tasks within the Action Plan are endorsed by the Program parties to place an increased emphasis on species recovery, in addition to Endangered Species Act (ESA) compliance for entities that rely on the RIP as a conservation measure.

Participation in the RIP is voluntary and in no way alters the Secretary of the Interior's ultimate responsibility for administering the ESA, nor shall it affect the authorities and responsibilities of the Federal and State agencies, districts, local governments, Pueblos and Tribes to manage and administer their resources (e.g., water, fish, wildlife). Entities are expected to make independent decisions regarding their RIP participation and their abilities to accomplish RIP activities.

The Action Plan is the "living" document that describes the Program's and its members' commitments to the RIP over five year increments. Annual updates of the Action Plan will ensure that the Collaborative Program both recognizes its successes and acknowledges any challenges and impediments to accomplishing the elements, actions, and tasks set forth in the plan. On an annual basis, new elements, actions, and tasks will be added to the Action Plan as needed, generally from the inventories of actions described in the Program's LTP and species recovery plans, which include possible additional species recovery actions. All updates or revisions to the RIP Action Plan shall be approved by the EC. The addition of specific commitments in the form of responsibilities and tools from various Program parties will occur during the annual update process.

The Action Plan integrates *adaptive management principles* into the elements, actions, and tasks so that management decisions are timely and effective. The EC will also consider new information including recommendations from the RIP's Adaptive Management Committee, Action Team and other appropriate sources of information. Changes in the Action Plan may also occur based on the Service's recommendations made during its annual sufficient progress evaluation, and also if newly listed species become included in the RIP.

I.2 Organization of the Action Plan

The Action Plan has three main parts. The remainder of Part I contains further detail on: (1) the formulation of elements, actions, and tasks; (2) how the RIP can utilize certain tools and strategies (such as water management plans and recovery plans) that have been developed by the RIP or from outside resources, for accomplishing Action Plan elements, actions, and tasks; (3) how the RIP will work with the water management agencies to modify or enhance water operations in ways that can benefit the listed species; (4) how the RIP will address drought and extreme conditions; and (5) how the Action Plan elements, actions, and tasks integrate and utilize adaptive management principles.

Part II of this document outlines the substantive activities that the Collaborative Program, through its signatory entities, is committing to accomplish within a five-year period for the RIP, assuming sufficient budgets and authorities. Appendix A provides the substantive Elements, Actions, and Tasks in tabular format along with the EC signatories' commitments and ESA conservation measures.

Part III addresses the Metrics that comprise the criteria by which the U.S. Fish and Wildlife Service (Service) will assess sufficient progress under the RIP for ESA compliance purposes for actions that are identified in section III.C of the Program Document.

I.3 Formulation of Elements, Actions, and Tasks

The Action Plan activities are described in a manner that focuses on obtaining recovery for the listed species and are, therefore, separated into major elements, with more detailed or specific actions and tasks associated with each element. *Elements* are intended to describe general species or Program needs; *actions* describe broad activities to meet those needs; and *tasks* break down the specific steps needed to implement an action.

et al., 2011). An ad hoc group of Collaborative Program members designated by the Executive Committee prepared the plan, which has been subsequently reviewed by the Collaborative Program's technical workgroups and the EC.

This Action Plan includes recovery activities for the silvery minnow and the flycatcher. The threatened Pecos sunflower (*Helianthus paradoxus*), the endangered Interior Least Tern (*Sternula antillarum athalassos*), the candidate Yellow-billed Cuckoo (*Coccyzus americanus*), and the candidate New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) currently are not addressed in this Action Plan. This Action Plan can be modified in the future to incorporate recovery activities for newly listed species and/or designated critical habitat.

This Action Plan is organized to focus RIP activities on the species of concern in a manner that promotes and emphasizes the integration of the essential components of species habitat (water, channel morphology, floodplain, food, water quality, etc.) within an adaptive management framework. This framework is an important premise underlying Action Plan implementation, as it directs that the RIP activities pertaining to and affecting species should be designed and coordinated to incorporate, where warranted, the testing of appropriate hypotheses, as well as research and monitoring of species needs and responses, in order to reduce species management uncertainties. This information will allow water managers and regulators to address species needs in a more effective and resource-efficient manner.

This Action Plan builds on and formalizes the existing coordination of water management agencies in the Middle Rio Grande (MRG), regulatory authorities, and program participants to ensure that MRG activities, including those accomplished outside the RIP, are coordinated among the various agencies throughout the year and are well informed by science.

The recovery actions and tasks identified in this Action Plan include those considered to be most important, within a five-year timeframe, to alleviate threats to species and promote recovery. Among other activities, the Action Plan also includes specific actions and tasks that were required under the 2003 Biological Opinion (BO) and are still important to continue.

Because down listing and delisting depend on multiple self-sustaining populations of silvery minnow, it is important to assist with efforts on reestablishing populations within their historical range. The Big Bend 10(j) efforts that have been underway, and supported by the Program since 2007, may provide one additional area if stocked fish become self-sustaining. The RIP may consider assistance for additional repopulation

efforts outside the MRG and expansion of silvery minnow's current range within the Program Area.

The Action Plan contains elements, actions, and tasks to support recovery efforts for the flycatcher. The majority of these RIP activities will be within the Program Area. Because the range of the flycatcher includes other Western states and Mexico there are a number of other recovery efforts underway outside of the Collaborative Program's area. There are also separate biological opinions for other areas in New Mexico. Consequently, the RIP's actions and tasks for the flycatcher will be primarily limited to the Program Area, with the exception of increasing the RIP's information exchange with these other groups. Generally, many of the recovery activities to be taken for the benefit of the silvery minnow are expected to also benefit the flycatcher and its habitat. Therefore, more specific efforts on the flycatcher are focused on in the Action Plan.

I.4 Tools and Strategies

A number of tools and strategies will be used to accomplish RIP actions within an adaptive management framework. These tools and strategies identify resources that might be used or provide details needed to fully implement the actions and tasks within the Action Plan. It is recognized that there are inherent governmental responsibilities that will be respected in development of tools and strategies.

The RIP will develop tools and strategies to be described in plans addressing RIP actions, including, but not limited to, a Habitat Restoration Strategy, a Habitat Plan for Rio Grande Silvery Minnow, a Fish Population Monitoring Plan, a Plan to Investigate and Identify Additional Introduction Sites for Minnow, a Communication and Outreach Plan, and an Adaptive Management Plan.

Relevant tools and strategies that are not developed by the RIP are expected to be used by the RIP to further the Program's goals. These tools and strategies include, but are not limited to the annual operating plans of the water management agencies, the Service's Captive Propagation and Genetics Plan, Rio Grande Silvery Minnow Augmentation Plan, Rio Grande Silvery Minnow (*Hybognathus amarus*) Recovery Plan, First Revision, and Final Recovery Plan, Southwestern Willow Flycatcher (*Empidonax traillii extimus*).

Contained in this Action Plan are a suite of water management tools – each having independent utility and in concert creating greater flexibility to manage the system for the benefit of listed species. The general categories of these tools include water acquisition and upstream storage, modified reservoir and water operations, infrastructure projects that salvage water, and planning for drought. It will take time to

develop a number of the possible water management tools and strategies due to many complexities such as the need for negotiations among responsible and interested parties, new authorizations from Congress, compliance with Federal and State environmental laws, and/or permitting from the New Mexico Office of the State Engineer. Water management tools may be evaluated using an Ecological Limits of Hydrologic Alteration (ELOHA) framework and other ecological modeling tools that incorporate ecosystem benefit criteria. Together, the water management tools are intended to provide the desired hydrologic conditions for the species and for the habitat upon which these species rely.

I.5 Drought Management and Other Extreme Contingencies

In case of severe and prolonged drought, it will be necessary to implement contingencies to ensure species survival. These might include alternative water management and recession management operations, higher fish propagation targets, alternative fish rescue provisions, and many other actions. The Action Team will be engaged in annual recommendations to include evaluating the best options for drought contingencies.

This Action Plan proposes to develop specific provisions for modifications to the RIP activities that will be necessary during drought conditions or to address long-term effects of climatic changes. Other activities necessary to address extreme contingencies, such as fire management, will also be addressed by the RIP. To ensure that the RIP can act in a timely and effective manner, the Action Plan includes a task to develop a Drought Management Plan for completion in the first six months of the RIP. The Drought Management Plan will include a revised action plan with modified elements, actions, and tasks that addresses a drought scenario.

Specifically the RIP will include as part of drought management:

- a. Existing operational captive propagation facilities – with shared funding for all facilities.
- b. Support for addressing operational refinements at the Minnow Sanctuary primarily through actions of Reclamation, FWS, ISC and MRGCD.
- c. Operate the Atrisco Habitat Restoration project as a drought refuge for RGSM and other refugia operated as needed on the river.

I.6 Adaptive Management

To achieve the RIP goals of conserving and contributing to the recovery of species and of protecting existing and future water uses, the Collaborative Program will be using adaptive management (AM) as a structured and systematic approach for designing, implementing, monitoring and evaluating management actions to maximize learning about critical scientific questions and to reduce uncertainties that affect management decisions regarding the use of Program resources.

There are a number of uncertainties and related hypotheses about the listed species and their habitats that are integral to water management and species recovery activities. The highly variable southwestern climate, increasing demands on limited water supplies; and uncertainties regarding the listed species' life history provide strong motivation for implementing adaptive management in the MRG. The Action Plan's integration of water, species, and habitat activities will rely heavily on reducing uncertainties through scientific investigation and hypothesis testing.

The Adaptive Management Plan, Version 1.1 (AMP-1; Murray et al., 2011) provides an initial framework for the development of a scientifically defensible adaptive management design specific to the RIP. As an important priority, the RIP will use guidance in AMP-1 and the AM experience of this and other programs to develop a formal Adaptive Management Plan (AMP-2), within the first year of the RIP's existence.

The AMP-1 suggested that the Program establish a policy and technical group to collaboratively conduct an evaluation of alternative sets of actions to both meet the Program's goals and concurrently reduce critical management uncertainties under a wide range of possible future conditions. The chosen actions that emerge from this iterative evaluation process would then be the focus of the content when developing AMP-2. The policy and technical group would reside within the larger Adaptive Management Committee described in the Program Document.

The RIP will identify specific management activities, monitoring, and research that will be used to evaluate and improve management decisions and will identify the decision-making framework for flexible water management and non-flow-related activities that provide for meeting the RIP goals.

those hypotheses, and explicit predictions of the outcomes. The following criteria will be considered as future actions are determined:

- *Cost-benefit:* It is believed, on sound evidence, that there is a good probability that it will work as intended and will be worth adopting (i.e., feasible and economical).
- *Acceptable risk:* The range of plausible outcomes if it does not work as intended are either tolerable or controllable, the early warning detection monitoring is in place, and the damage control capability is ready to deploy.
- *Learning potential:* There is a commitment to monitoring to determine if an action does or does not work, and the statistical design of the monitoring has sufficient power for that task.

Part II. Elements, Actions, and Tasks

Appendix A contains a table of the RIP's activities that the Collaborative Program considers important for accomplishing the RIP goals. These activities will be accomplished over the initial five-year period assuming sufficient budgets and authorities. Modifications to the Action Plan will occur annually to accommodate changes in budgets and schedules and to incorporate new information that may lead to changes in the activities. The Action Plan activities are described in a manner that focuses on making progress towards recovery for the listed species and are therefore separated into major elements, with more detailed or specific actions and tasks associated with each element. Elements are intended to describe general species or Program needs, actions describe broad activities to meet those needs, and tasks break down the specific steps needed to implement an action. Five elements are described for the silvery minnow and three elements are described for the flycatcher. Under these elements, a number of actions and tasks are listed. In addition, two elements describe the program management actions and tasks.

The "Tools and Resources" column in Appendix A lists programs, studies, documents, services, and resources that could be necessary or helpful to accomplish each task. The list of tools includes existing work products or work in progress and resources that relate to the actions and tasks.

The "Commitments and Responsibilities" column in Appendix A paraphrases commitments and conservation measures of parties to the ESA consultation. This column also includes RIP programmatic commitments and responsibilities that may require combined resources (including financial), efforts, and decision-making. The objective of Appendix A is, in part, to underscore the substantive commitments already made that will facilitate accomplishing the RIP activities and to describe those commitments as specifically as possible. Appendix A also provides the framework for evaluating where additional commitments are needed. Because of the complex roles and responsibilities of the agencies, maintaining this information in the annual updates of the Action Plan will be important for the RIP's progress toward its goals. Because the commitments and responsibilities are paraphrased, it may be necessary to refer to the source documents for a complete understanding of the agencies' intent: Bosque del Apache National Wildlife Refuge Biological Assessment; USACE MRG Reservoir Operations Biological Assessment; and Reclamation's Joint Biological Assessment: Bureau of Reclamation and Non-Federal Water Management and Maintenance Activities on the MRG.

II.1 Elements for Rio Grande Silvery Minnow

The elements and actions anticipated to be pursued during the period of this five-year Action Plan to fulfill the Collaborative Program's purposes and goals relative to the silvery minnow are outlined in Sections II.1.1 through II.1.5 below, and are summarized together with their associated tasks in Appendix A.

Element 1.1 – Spawning and Survival of Larvae

Action 1.1.1. Create habitat for spawning and larval survival (including nursery habitat).

Action 1.1.2. Work to provide spring-time hydrologic (flow) conditions and suitable habitat to facilitate spawning and larval fish survival.

Element 1.2 – Post-Spawning Survival

Action 1.2.1. Provide wetted habitat areas during summer, fall, winter, and early spring that can be shown to facilitate survival of silvery minnow to the spring spawning period.

Action 1.2.2. Work to provide hydrologic (flow) conditions to support survival in all years.

Action 1.2.3. Minimize silvery minnow mortality associated with river drying.

Action 1.2.4. Increase reach boundary connectivity.

Element 1.3 – Propagation and Augmentation

Action 1.3.1. Plan and evaluate silvery minnow propagation and augmentation program.

Action 1.3.2. Develop, support, and maintain propagation and rearing facilities for silvery minnow.

Action 1.3.3. Rear and maintain silvery minnow in captivity.

Action 1.3.4. Augment MRG wild populations as necessary.

Element 1.4 – Research, Monitoring, and Adaptive Management for Silvery Minnow

Action 1.4.2. Identify and prioritize specific research and monitoring activities as input to AM process and for informing RIP actions.

Action 1.4.3. Conduct, evaluate, and refine monitoring activities.

Action 1.4.4. Conduct research on silvery minnow for the RIP.

Action 1.4.5. Continue to evaluate the viability of silvery minnow populations.

Action 1.4.6. Test and evaluate assumptions underlying the Hydrologic Objective and refine as appropriate.

Action 1.4.7. Evaluate the use of the Ecological Limitations of Hydrologic Alteration (ELOHA) or other similar framework to model historic and future flow conditions for producing riverine and riparian habitat.

Element 1.5 – Additional Wild Self-Sustaining Populations of Silvery Minnow

Action 1.5.1. Support the development of additional wild self-sustaining populations of silvery minnow outside of the MRG.

II.2 Elements for Southwestern Willow Flycatcher

The elements and actions anticipated to be pursued during the period of this five-year Action Plan to fulfill the Collaborative Program's purposes and goals relative to the flycatcher are outlined in Sections II.2.1 through II.2.3, and are summarized together with their associated tasks in Appendix A.

Element 2.1 – Flycatcher Territory Establishment and Nesting Success

Action 2.1.1. Create habitat conducive to territory establishment and nesting success. Determine the viability of flycatcher populations and specifically the habitat patches they occupy.

Action 2.1.2. Create hydrologic conditions conducive to territory establishment and nesting success. Implement provisions of Drought Management Plan when triggered.

Element 2.2 – Flycatcher Research, Monitoring, and Adaptive Management

Action 2.2.1. Assess, identify, and prioritize specific science activities that address overall Program goals.

Action 2.2.2. Develop and implement monitoring programs using established protocols.

Element 2.3 – Flycatcher Populations Outside of the Program Boundaries

Action 2.3.1. Coordinate and share information range-wide of other flycatcher populations.

II.3 RIP Management Elements

The elements and actions anticipated to be pursued during the period of this five-year Action Plan to fulfill the Collaborative Program's purposes and goals relative to RIP management are outlined in Section II.3.1, and are summarized together with their associated tasks in Appendix A.

Element 3.1 – RIP Management

Action 3.1.1. Administer the RIP.

Action 3.1.2 Manage and Participate in RIP Management and Administration

Action 3.1.3. Implement and coordinate RIP activities.

Action 3.1.4. Establish and maintain a Database Management System for RIP needs, including all appropriate data generated through implementing RIP actions.

Action 3.1.5. Develop sufficient progress metrics for listed species.

II.4 Estimated Costs

The estimated funding commitments by budget category to support the Elements, Actions, and Tasks contained in Appendix A are listed in Table 1. The funding commitments are in the form of cash, in-kind contributions, and/or work performed under agency-specific authority from ABCWUA, City of Albuquerque, MRGCD, NMISC, USACE, Reclamation, and BDANWR over a five year period.

Table 1. Estimated Funding Levels for Action Plan Implementation

| Budget Category | Two-year Estimates Extrapolated to Five Years for Range of Funding |
|--|---|
| Program Management | \$6,000,000 to \$8,000,000 |
| Water Management for Rio Grande Silvery Minnow Spawning and Post-Spawning | \$35,000,000 to \$45,000,000 |
| Habitat Restoration and Infrastructure Projects for Rio Grande Silvery Minnow Spawning and Post-Spawning and for Flycatcher Breeding Areas | \$28,000,000 to \$40,000,000 |
| Research, Monitoring and Adaptive Management assessments | \$5,000,000 to \$20,000,000 |
| Total ¹ | \$77,500,00 to \$119,000,000 |

¹ The funding commitments in Table 1 are based on input from the Program signatories who have submitted Biological Assessments to the Service, and are subject to confirmation by those agencies. Confirmation of these funding commitments was not available at the time of finalization of this Final Draft document for review, and will be addressed at the July 18, 2013 EC meeting. [See Special Attention Language document prepared for this section of the Action Plan.](#)

Part III. Sufficient Progress Determination

The Service will make an annual determination of whether the RIP is making sufficient progress toward recovery of listed species. A determination of sufficient progress ensures continued ESA compliance for covered actions that are referenced in Section III.C of the Program Document. The sufficient progress assessment process is described in Section VI of the Program Document. The Metrics by which the Service will assess sufficient progress will be identified in Section III.1 of this Action Plan.

III.1 Process for Metrics Formulation

The Metrics are expected to incorporate and reflect both measures of implementation of RIP activities and of species response, as well as standards of avoiding jeopardy (and adverse critical habitat modification) and of advancing species recovery. The Metrics will address:

- Implementation of tasks under the RIP designed to reduce threats to the species and improve their status;
- Measurements of the status of the species, including the status of designated critical habitat (ability to maintain the PCEs);
- Indications of positive population response and improvement in habitat for the species, or reduction in the threat of immediate extinction; and
- Implementation of the Action Team's annual recommendation as approved by the EC.

This framework for developing Metrics may be visualized as filling in the following matrix, which is presented purely as an example of the types of Metrics that the RIP could utilize and not as a proposal to adopt these particular Metrics. As represented here, this framework would allow the RIP to assess with some precision its level of success in implementing activities and promoting species responses that maintain and advance listed species' likelihood of survival and recovery, as well as allowing the RIP to select and develop future activities, adaptive management approaches, and Metrics that are informed by such assessments.

Table 2. Examples of types of Metrics to be utilized after interim period

| Interpretational | Example Operational Measures | |
|--|--|---|
| | Implementation of RIP Action Plan | Species Response |
| Avoids appreciable reduction in likelihood of survival and recovery (and adverse critical habitat modification) so as not to trigger reinitiation. | x fish released from hatchery x miles of river bank lowered x acre-feet of water pumped into river | demographic indicators, CPUE index from monitoring sites PVA assessment of probability of survival at 100 years |
| | $x + y$ acre-feet of water pumped into river | demographic indicators PVA assessment of probability of recovery |

PVA = population viability analysis

CPUE = catch per unit effort

Particular values for these types of Metrics would be determined as a result of the incorporation of upcoming scientific analysis from various sources (e.g., 2013 Workshop[s], Program science, science compiled for Biological Assessments, Biological Opinions) after assessment and decision by the EC. The Program's PVA modeling may be able to assess the contribution of each factor underlying such types of Metrics (e.g., flow or habitat) to the likelihood of species' survival and recovery. PVA model outputs can thus validate indicators of progress and, further, can be used to propose other indicators and thereby assume an important role in ongoing development and refinement of the Metrics.

The Metrics will be approved by the EC. Updating Metrics, as part of annual update and amendments of the five-year Action Plan, is expected to be the responsibility of the Executive Director, in coordination with and with the approval of the EC. Because Metrics must continually remain relevant to species status and prospects for survival and recovery, using the best available scientific information as this information is developed, key considerations to be utilized by the Executive Director and the EC in updating Metrics include:

- Relevance to species population viability (i.e., to maintaining the risk of extirpation below an acceptable level and the probability of recovery above an acceptable level);
- Relevance to RIP recovery actions identified in the Action Plan and Annual Work Plan (since the Metrics serve to evaluate these);
- Measurability of demographic and other factors important as indicators of viability (e.g., survival, reproduction, recruitment, distribution, genetic diversity), appropriate correlate measures, and the degree of confidence in such correlations; and
- Feasibility and achievability of measured activities and/or population viability factors within resource (funding, water) and RIP organizational and institutional constraints.

During the initial and subsequent formulation of Metrics, the Executive Director and EC will ensure that proposed Metrics maintain relevance to species population viability, utilizing the RIP protocols and procedures for internal science review and external peer review as needed.

III.2 Sufficient Progress Metrics

Under development

References

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- U.S. Fish and Wildlife Service. 2010. Rio Grande Silvery Minnow (*Hybognathus amarus*) Recovery Plan, First Revision. Albuquerque, NM. viii + 210 pp. (Accessed at: http://ecos.fws.gov/docs/recovery_plan/022210_v2.pdf)

Definitions

Adaptive Management – A structured, iterative, and analytical process for designing and implementing management actions to maximize learning about critical uncertainties that affect decisions, while simultaneously striving to meet multiple management objectives. It involves synthesizing existing knowledge and identifying critical uncertainties, developing hypotheses related to those critical uncertainties, exploring alternative management actions to test those hypotheses, making explicit predictions of their outcomes including level of risk involved with implementation, selecting one or more actions to implement, conducting monitoring and research to see if the actual outcomes match those predicted, and then using these results to learn and adjust future management and policy.

Flycatcher – The shortened name given in this document to the Southwestern Willow Flycatcher (*Empidonax traillii extimus*).

Viability (genetic) – To be genetically viable, a population must start out with, and maintain, sufficient genetic diversity to adapt to the anticipated range of environmental

conditions that it will encounter. Factors that can work against the maintenance of genetic diversity include episodes of extremely small numbers of breeding individuals, high frequency of inbreeding, and selection in artificial environments.

Viability (population) – A species population’s ability to persist and to avoid extinction. The viability of a population typically varies with changes in the rates of birth, death, and growth of individuals. In natural populations, these rates themselves fluctuate in response to external forces (floods, droughts, introduced species) and internal forces (competition and genetic composition). Such factors can drive populations to extinction if they are severe or if several detrimental events occur before the population can recover.

Note: Because the commitments and responsibilities are paraphrased, it may be necessary to refer to the source documents for a complete understanding of the agencies’ intent: Bosque del Apache National Wildlife Refuge Biological Assessment; USACE MRG Reservoir Operations Biological Assessment as amended; and Reclamation’s Joint Biological Assessment: Bureau of Reclamation and Non-Federal Water Management and Maintenance Activities on the MRG.

| Action | Task | Existing Resources and Funding Commitments | Conservation Measures from Agency Biological Assessments | Anticipated Start | Linkage to LTP |
|--|---|---|--|-------------------|---|
| 1.1.1 Create habitat for spawning and larval survival (including nursery habitat). | 1.1.1a. In the first 6 months of the RIP, specifically identify, plan and develop conceptual design for habitat restoration projects targeting 300 acres total that provide increased overbanking, backwater areas, and high-flow channels in the Cochiti, Albuquerque, Isleta, and San Acacia reaches for implementation in the first 5 years of the program. Evaluate conceptual design based on previous projects. | Existing Resources: <ul style="list-style-type: none">· Habitat Restoration Workgroup Products including: Analysis & Recommendation reports, HR Project reports, mapping tools, Rapid Assessment Tool, and matrix· PVA Model· Habitat Restoration Plans (basin-wide)· Adaptive Management Plan Version 1· Sediment Management Plan· Inundation Analysis Model· Recruitment Analysis· Land use planning tools· Regional Water Plans· Geomorphic studies and reach plans conducted by ISC, Pueblos, USACE Funding commitments: <ul style="list-style-type: none">· Numerous agencies have funding to assist in preparing this plan | None | Within first year | 7.1.A.2, 7.1.C.2 - HR planning FLO2D and HEC-RAS - pages 27 and 107 |

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| | 1.1.1b. Over 5 years, construct a target of 300 acres of habitat in the Cochiti, Albuquerque, Isleta, and San Acacia reaches based on Task 1.1.1a. | <p>Existing Resources:</p> <ul style="list-style-type: none">· Streamlined environmental compliance· River maintenance planning· Geomorphic study and reach plan· Habitat restoration workgroup Products including: Analysis & Recommendation reports, HR Project reports, mapping tools, Rapid Assessment Tool, and matrix <p>Funding commitments:</p> <ul style="list-style-type: none">· MRGCD, NMISC, Reclamation, and other RIP participants - Plan, design and construct habitat. The NMISC, Reclamation, and MRGCD cooperate to construct 200 acres of RGSM spawning/rearing habitat over the next five years with a focus within 10 miles upstream and downstream of Angostura, Isleta, and San Acacia Diversion Dams where water is or can be made available.· USACE - Plan, design and construct habitat (subject to obtaining a non-federal partner and appropriation from Congress)· COA - Bosque maintenance including minnow habitat· BDANWR - Contribute to planning, designing and construction of projects to benefit the species such as: Channel Realignment River Mile 81 Project, degradation management project, river bar management, minnow refugia, living streams | <p>NMISC:</p> <ul style="list-style-type: none">- Lease water from SWR for habitat depletion offsets <p>MRGCD:</p> <ul style="list-style-type: none">- Maintain outfalls to enhance habitat areas- Create habitat by assisting in obtaining funding, and/or land with goal of 75 acres <p>USACE:</p> <ul style="list-style-type: none">- Continue to implement ecosystem restoration projects with the support of local, cost-sharing sponsors <p>BDANWR:</p> <ul style="list-style-type: none">- To be added | Habitat construction to begin within 24 months of the RIP and completed within 48 months. | 7.1.A.3 projects on pgs. 35, 37, 7.1.C.3, 39 and 41 |
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| | <p>1.1.1c. Develop and implement a long-term integrated habitat restoration strategy with the objective of achieving a population level response.</p> <p>[Note: The strategy should address techniques for managing river system geomorphology for the benefit of the species including engineered modifications to control river loss rates. This should result in a prioritized list of new habitat projects, indicating which projects need to be maintained or enhanced in the Middle Rio Grande that will provide improvements for overbanking and other habitat needs. Plan and design these projects for construction in years 6 through 10 based on evaluation of previous projects and new concepts.]</p> | <p>Existing Resources:</p> <ul style="list-style-type: none">· Habitat Restoration Workgroup Products including: Analysis & Recommendation reports, HR Project reports, mapping tools, Rapid Assessment Tool, and matrix· PVA Model· Habitat Restoration Plans (basin-wide)· Inundation Analysis Model· Recruitment Analysis· Land use planning tools· Regional Water Plans· Geomorphic studies and reach plans conducted by ISC, Pueblos, and USACE· Transport Plan <p>Funding commitments:</p> <ul style="list-style-type: none">· Numerous agencies have funding to assist in preparing this plan | <p>USACE:</p> <ul style="list-style-type: none">- Continue to document and investigate geomorphic conditions and trends to improve sediment transport- Coordinate with all pueblos along the Middle Rio Grande regarding sediment management at Corps reservoirs | <p>Within first 3 years</p> | <p>7.1.A.2</p> |
| | | | <p>NMISC:</p> <ul style="list-style-type: none">- Maintain existing overbank habitat constructed by the State in Albuquerque and Isleta reaches for up to ten years.- Continue to contribute depletion offsets for the State’s habitat restoration projects in Albuquerque and Isleta reaches in accordance with existing agreements- Continue to contribute depletion offsets for selected existing USACE MRG Floodway Projects <p>MRGCD:</p> <ul style="list-style-type: none">- Maintain outfalls to enhance habitat areas- Construct siphon to manage water supply at San Acacia- Create habitat by assisting in obtaining funding, and/or land with goal of 75 acres <p>USACE:</p> <ul style="list-style-type: none">- Continue to monitor habitat restoration effectiveness. <p>Reclamation:</p> <ul style="list-style-type: none">- Supplemental Water Program | <p>Within first year</p> | <p>7.1.A.4, 7.1.C.5 (no projects shown)</p> |

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| 1.1.2. Work to provide spring-time hydrologic (flow) conditions and suitable habitat to facilitate spawning and larval fish survival. | 1.1.2a. In advance of every year’s spring runoff, the Action Team will provide its recommendations, pursuant to protocol established in Task 3.1.2g. to the EC on that specific year’s operations and management of species-related resources for the minnow spawn. | <p>Existing Resources:</p> <ul style="list-style-type: none">· PVA Model· Fish population monitoring data· URGWOM/hydrologic models· NRCS Forecasts· Agency Annual Operating plans· Previous Action Team reports· Service’s final Sufficient Progress Report (2015 - 2018)· Annual RGCC Report· Annual species management objectives· Sediment Transport Plan <p>Funding commitments:</p> <ul style="list-style-type: none">· Numerous agencies will assist in preparing these annual recommendations | <p>Reclamation:</p> <ul style="list-style-type: none">- Coordinate to successfully accomplish environmental water operations <p>ABCWUA:</p> <ul style="list-style-type: none">- Continue coordination of water releases/ diversions <p>USACE:</p> <ul style="list-style-type: none">- Coordinate with water and resource management entities on operations of dams and reservoirs- Work with water management entities to produce Annual Operating Plan- Work with water management entities to develop Annual Water Management Plan- Continue to operate reservoirs to allow seasonal overbank flooding to the extent feasible within the limits of the safe channel capacities- Investigate and evaluate potential for facilitating recruitment and spawning flows | Within first year | 7.2.C.5, pg 115, 119, 127, 7.2.C.2, pg 50, 7.2.A.1, 7.2.A.2, 7.2.A.5, Decision Tree, Hydrologic Conditions, pg 109 |
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| | <p>1.1.2b. Manage water and other resources taking into account the Action Team's approved recommendations as needed to provide environmental conditions expected to produce spawning and larval fish survival.</p> | <p>Existing Resources:</p> <ul style="list-style-type: none">· Reservoir storage and release schedules· Water supply for depletion offset associated with spawning flow manipulation· Storage and diversion management· LFCC pumping· Supplemental water supply for flow management· SJC delivery management <p>• Adaptive Management Plan Version 1</p> <p>• Sediment Transport Plan</p> <p>Funding commitments:</p> <ul style="list-style-type: none">• ABCWUA - San Juan-Chama flow efficiency, Establish 30,000 Acre Foot conservation storage pool in Abiquiu with environmental group• MRGCD - Manage conveyance, operational changes, develop and administer groundwater leasing program, minimize entrainment, provide Isleta and San Acacia discharges, provide return flow/outfalls• NMISC - assist in management of river flows, seek opportunities to obtain water rights for strategic water reserve, utilize strategic water reserve for ESA purposes, including Habitat Restoration offsets, and up to 60 AF of Cochiti recruitment flow offsets, provide up to 6,000 acre-feet of relinquishment credit over 10 years.• USACE - Investigate and evaluate facilitating spawning and recruitment flow through reservoir operations• Reclamation - Implement Supplemental Water Program, Pump and convey water from Low Flow Conveyance Channel, and use SJC Project waivers of mandatory release dates from Heron Reservoir• Various agencies to provide depletion offsets <p>Reclamation, ISC, MRGCD will develop a new Emergency Drought Water Agreement.</p> | <p>ABCWUA:</p> <ul style="list-style-type: none">- Develop additional storage of native water at Abiquiu- Negotiate conservation storage agreements for 30,000 acre feet- Lease water to BOR within the Supplemental Water Program- Continue water conservation- Continue coordination of water releases/ diversions <p>MRGCD:</p> <ul style="list-style-type: none">- Enhance coordination of water operations- Modify operations to support instream habitat and flow management- Modification of El Vado operations to support Spring peak flows- Develop Annual Operating Plan- Participate in Supplemental Water Pool in Abiquiu- Manage surplus/excess flows to benefit species and bear conveyance loss <p>NMISC:</p> <ul style="list-style-type: none">- Work with the Rio Grande Compact Commission to support USACE efforts in securing approval for deviations from normal reservoir operations.- Provide up to 60 acre-feet of consumptive use rights from Strategic Water Reserve for offsets of spawning-related depletions- Lease water from SWR for overbank deviation-related offsets. <p>USACE:</p> <ul style="list-style-type: none">- Continue to document and investigate geomorphic conditions and trends to improve sediment transport- Coordinate with all pueblos along the Middle Rio Grande regarding sediment management | <p>Within first year</p> | <p>7.2.A.3</p> |
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| | | | <div>at Corps reservoirs</div> <div>- Continue to operate reservoirs to allow seasonal overbank flooding to the extent feasible within the limits of the safe channel capacities</div> <div>Reclamation:</div> <div>- Implement Supplemental Water Program</div> <div>- Use SJC Project waivers of mandatory release dates from Heron Reservoir</div> <div>- Pump and convey water from LFCC to the Rio Grande</div> <div>- Coordinate to successfully accomplish environmental water operations</div> | | |
| <i>Element 1.2: RGSM Post-Spawning Survival</i> | | | | | |
| | | | | Within first year | 7.1.A.2, 7.1.C.2 - HR planning FLO2D and HEC-RAS - pages 27 and 107, 7.5.A.1, 7.5.A.2 |

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| | 1.2.1b. Construct and maintain refugial habitats as specified in Task 1.2.1a. | <p>Existing Resources:</p> <ul style="list-style-type: none">· Habitat Monitoring Program· River Eyes Program· MRGCD, et al annual operating plan· MRGCD canal/drain/wasteway controls· Supplemental water (groundwater leasing program and Reclamation)· Inundation Analysis Model· Recruitment Analysis· Habitat Monitoring Plan· PVA model· URGWOM· Geomorphic study and reach plan <p>Funding commitments:</p> <ul style="list-style-type: none">· See habitat commitments in 1.1.1b above· ABCWUA - San Juan-Chama flow efficiency, Establish 30,000 acre foot conservation storage pool in Abiquiu with environmental group· MRGCD - Manage conveyance, operational changes, support groundwater leasing program, minimize entrainment, provide Isleta and San Acacia discharges, provide return flows/outfalls, maintain outfalls to enhance habitat areas· NMISC will assist in management of river flows, seek opportunities to obtain water rights for strategic water reserve, utilize strategic water reserve for ESA purposes including HR offsets and up to 60 AF of Cochiti recruitment flow offsets, provide up to 6,000 acre-feet of relinquishment credit over 10 years.· Reclamation - Implement Supplemental Water Program, Pump and convey water from Low Flow Conveyance Channel, and use SJC Project waivers of mandatory release dates from Heron Reservoir· BDANWR - Contribute to planning, designing and construction of projects to benefit the species such as: Channel Realignment River Mile 81 Project, degradation management project, river bar management, minnow refugia, living streams | <p>MRGCD:</p> <ul style="list-style-type: none">- Enhance coordination of water operations- Modify operations to support instream habitat and flow management- Develop Annual Operating Plan- Participate in Supplemental Water Pool in Abiquiu- Manage surplus/excess flows to benefit species and bear conveyance loss- Maintain outfalls to enhance habitat areas,- Construct siphon to manage water supply at San Acacia,- MRGCD return flow collection system,- Create habitat by assisting in obtaining funding, and/or land with goal of 75 acres over 5 years- Cooperate with groundwater lease program <p>NMISC:</p> <ul style="list-style-type: none">- Maintain existing overbank habitat constructed by the State in Albuquerque and Isleta reaches- Continue to contribute depletion offsets for the State’s habitat restoration projects in Albuquerque and Isleta reaches- Continue habitat restoration depletion offset program for the USACE MRG Floodway Projects <p>EE 2. Lease water from SWR for habitat depletion offsets</p> <p>USACE:</p> <ul style="list-style-type: none">- Continue to implement ecosystem restoration projects with the support of local, cost-sharing sponsors <p>Reclamation:</p> <ul style="list-style-type: none">- Implement Supplemental Water Program- Use SJC Project waivers of mandatory release dates from Heron Reservoir- Pump and convey water from | Within first 2 years | 7.1.A.3 projects on pgs. 35, 37, 7.1.C.3, 39 and 41 |
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| | | | LFCC to the Rio Grande - Coordinate to successfully accomplish environmental water operations | | |
| | 1.2.1c. Develop and implement a long-term integrated “Habitat Plan for the Rio Grande Silvery Minnow” with the objective of achieving a population level response. [Note: The strategy should address techniques for managing river system geomorphology for the benefit of the species. This should result in a prioritized list of viable wetted habitats within or adjacent to the main river channel that may be expected to sustain silvery minnow. Plan and design these projects for construction in years 6 through 10.] | Existing Resources: <ul style="list-style-type: none">· Habitat usage study· Population monitoring data· Riparian groundwater modeling· River Eyes Program· Salvage and rescue information· MRGCD GIS and hydrologic data· HRW products including Analysis & Recommendation Reports, mapping, Rapid Assessment tool Funding Commitments: <ul style="list-style-type: none">· Numerous agencies will assist in preparing this plan | USACE: - Continue to document and investigate geomorphic conditions and trends to improve sediment transport | Within 3 years | 7.1.A.2, 7.5.A.1, 7.5.A.2, |
| | 1.2.1d. Support maintenance of Collaborative Program habitat restoration projects for post-spawning survival with periodic review of habitat effectiveness (Task 1.4.2b). | Existing Resources: <ul style="list-style-type: none">· SJC water for depletion offsets· RG water for depletion offsets· Force account (internal) field services· Contract field services· Other monitoring programs· River Eyes Program· Sediment Modeling Funding commitments: <ul style="list-style-type: none">· COA - Bosque maintenance· NMISC, Reclamation, BDANWR - Habitat monitoring and maintenance· USACE - Habitat monitoring | MRGCD: - Maintain outfalls to enhance habitat areas NMISC: - Maintain existing overbank habitat constructed by the State in Albuquerque and Isleta reaches for up to ten years - Continue to contribute depletion offsets for the State’s habitat restoration projects in Albuquerque and Isleta reaches in accordance with existing agreements - Continue to contribute depletion offsets for selected existing USACE MRG Floodway Projects | Within first 2 years | 7.1.A.4, 7.1.C.5 (no projects shown) |

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| 1.2.2. Work to provide hydrologic (flow) conditions to support survival in all years. | 1.2.2a. In advance of every year's spring runoff, the Team will provide recommendations, pursuant to protocol established in Task 3.1.2g. to the EC on that specific year's operations and management of species-related resources until the onset of the next spawning period. | <p>Existing Resources:</p> <ul style="list-style-type: none"> · USFWS's Hydrologic Objectives · PVA Model · Egg monitoring data · Population monitoring data · URGWOM · NWS/NOAA mid and long range climate projections · Agency Annual Operating plans · Annual RGCC Report <p>Funding commitments:</p> <ul style="list-style-type: none"> · Numerous agencies will assist in preparing these annual recommendations | | | 7.2.C.5, pg 115, 119, 127, 7.2.C.2, pg 50 |
| | 1.2.2b. Manage water and other resources taking into account the Action Team's approved recommendations to provide habitat conditions intended to achieve species management objectives leading up to the onset of the next spawning period. | <p>Existing Resources:</p> <ul style="list-style-type: none"> · USFWS's Hydrologic Objectives · Supplemental water supply · LFCC Pumping · MRGCD Storage/Diversion/Return Flow · +C16 Refugial Habitats · Fish Salvage · Artificial Refugiums · Agency Operating Plans · Coordinated Water Operations · River Eyes program · Augmentation program <p>Funding commitments:</p> <ul style="list-style-type: none"> · ABCWUA - San Juan-Chama flow efficiency, Establish 30,000 acre foot conservation storage pool in Abiquiu with environmental group. · MRGCD - Manage conveyance, operational changes, support groundwater leasing program, minimize entrainment, provide Isleta and San Acacia discharges, provide return flows/outfalls · NMISC - Assist in management of river flows, seek opportunities to obtain water for strategic water reserve, utilize strategic water reserve for ESA purposes, provide up to 6,000 acre-feet of relinquishment credit over 10 year · Reclamation - Implement Supplemental Water | <p>ABCWUA:</p> <ul style="list-style-type: none"> - Develop additional storage of native water at Abiquiu - Negotiate conservation storage agreements for 30,000 acre feet - Lease water to BOR within the Supplemental Water Program - Continue water conservation - Continued coordination of water releases/ diversions <p>MRGCD:</p> <ul style="list-style-type: none"> - Enhance coordination of water operations - Modify operations to support instream habitat and flow management - Construct siphon to manage water supply at San Acacia, - MRGCD return flow collection system, - Cooperate with groundwater lease program <p>NMISC:</p> <ul style="list-style-type: none"> - Provide up to 2,000 acre-feet per event (6,000 acre-feet total) of currently unallocated Rio | Within first 2 years | 7.2.A.3 |

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| | | <p>Program, Pump and convey water from Low Flow Conveyance Channel, and use SJC Project waivers of mandatory release dates from Heron Reservoir</p> | <p>Grande Compact relinquishment credit for release at low rates when MRGCD has stopped storage release operations.</p> <ul style="list-style-type: none">- Continue agreements for management and operation of Los Lunas Silvery Minnow Refugium USACE:- Coordinate with water and resource management entities on operations of dams and reservoirs- Work with water management entities to produce Annual Operating Plan- Work with water management entities to develop Annual Water Management Plan- Document and investigate geomorphic conditions and trends to improve sediment transport- Continue to operate reservoirs to allow seasonal overbank flooding to the extent feasible within the limits of the safe channel capacities.- Investigate and evaluate potential for facilitating recruitment and spawning flows. <p>Reclamation:</p> <ul style="list-style-type: none">- Implement Supplemental Water Program for water acquisition and storage- Use SJC Project waivers of mandatory release dates from Heron Reservoir- Pump and convey water from LFCC to the Rio Grande including Escondida outfall- Coordinate to successfully accomplish environmental water operations | | |
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| 1.2.3. Minimize silvery minnow mortality associated with river drying. | 1.2.3a. Manage rates of recession of the river to minimize stranding and mortality of silvery minnow. | <p>Existing Resources:</p> <ul style="list-style-type: none"> · MRGCD Canal/Drain/Wasteway operation · Cochiti Operation · LFCC Pumping · Supplemental Water program · River Eyes Program · Coordinated River Operation <p>Funding commitments:</p> <ul style="list-style-type: none"> · See habitat commitments in 1.1.1b above · MRGCD - Manage conveyance, operational changes, develop and administer groundwater leasing program, minimize entrainment, provide Isleta and San Acacia discharges, provide return flows at outfalls · NMISC - Manage resources, strategic water reserve administration, 6,000 acre-feet of relinquishment credit over 10 years · Reclamation - Implement Supplemental Water Program, Pump and convey water from Low Flow Conveyance Channel, and use SJC Project waivers of mandatory release dates from Heron Reservoir | <p>MRGCD:</p> <ul style="list-style-type: none"> - Enhance coordination of water operations - Modify operations to support instream habitat and flow management - Exclude recession management flow from MRGCD “natural flow” <p>Reclamation:</p> <ul style="list-style-type: none"> - Implement Supplemental Water Program for water acquisition and storage - Use SJC Project waivers of mandatory release dates from Heron Reservoir - Pump and convey water from LFCC to the Rio Grande including Escondida outfall - Coordinate to successfully accomplish environmental water operations | Within first year | 7.2.A.2, 7.2.B.2, 7.2.C.2 |
| | 1.2.3b. As appropriate, rescue and relocate silvery minnow during the managed drying events. | <p>Existing Resources:</p> <ul style="list-style-type: none"> · Fish salvage · Captive propagation facilities · Refugial habitat and other habitat projects <p>Funding Commitments:</p> <ul style="list-style-type: none"> · Funding will be provided if necessary | | As appropriate | 7.6.A.2 Monitoring, Salvage/Rescue pg. 88 |
| 1.2.4. Increase reach boundary connectivity. | <p>1.2.4a. Within operating authorities, manage and/or modify San Acacia infrastructure and/or operations to facilitate fish passage.</p> <p>1.2.4b. Conduct planning studies to evaluate the river channel conditions at diversion dams and determine effective and cost efficient way(s), if any, to allow for river connectivity that allows fish passage during all or part of the year at each diversion structure.</p> | <p>Existing Resources:</p> <ul style="list-style-type: none"> · San Acacia Fish Passage Peer Review · RGSM Fish Passage studies · Bernardo Siphon Plan · Alternatives at San Acacia Dam · Population Monitoring Data · PVA model <p>Funding commitments:</p> <ul style="list-style-type: none"> · MRGCD - Manage conveyance, operational changes, provide Isleta and San Acacia discharges, provide return flows/outfalls, Bernardo Siphon (cost share). · Reclamation - San Acacia public outreach program, river connectivity project development and implementation | None | Within first 4 years | 7.1.A.6 Fish Passage |

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| | 1.2.4b. Within operating authorities, manage and/or modify Isleta infrastructure and/or operations to facilitate fish passage. | Existing Resources: <ul style="list-style-type: none"> Isleta Fish Passage Feasibility Study RGSM Fish Passage studies Population Monitoring Data PVA model Funding commitments: <ul style="list-style-type: none"> TBD | None | Within first 4 years | 7.1.A.6 Fish Passage |
| Element 1.3: RGSM Propagation and Augmentation | | | | | |
| 1.3.1. Plan and evaluate silvery minnow propagation and augmentation program. | 1.3.1a. Revise and refine “RGSM Genetics Management and Propagation Plan” for captive rearing and propagation to augment the population in the MRG, including addressing drought operations. This includes incorporation of Tasks 1.3.1b and 1.3.1c as appropriate. | Existing Resources: <ul style="list-style-type: none"> Captive Propagation and Genetics Workgroup Previous related plans, research, and reports PVA model Population monitoring Egg monitoring Drought data Funding commitments: <ul style="list-style-type: none"> NMISC - Provide personnel and external experts to assist in the development of the plan Reclamation - Fund Service staff to perform technical support of augmentation activities | None | | 7.4.A.1, 7.4.A.2 |
| | 1.3.1b. Perform genetic evaluation of captive and wild fish and determine effect of augmentation on genetic viability of wild populations. | Existing Resources: <ul style="list-style-type: none"> Genetics Peer Review Captive Propagation and Genetics Workgroup Funding commitments: <ul style="list-style-type: none"> Reclamation - Fund genetics monitoring | None | | 7.4.A.1 |
| | 1.3.1c. Evaluate and establish genetic parameters for recovery. | Existing Resources: <ul style="list-style-type: none"> Captive Propagation and Genetics Workgroup Previous related plans and reports PVA model Population monitoring Egg monitoring Genetic Peer Review Funding commitments: <ul style="list-style-type: none"> NMISC - Provide personnel and external experts to assist Reclamation - Fund Service staff to perform technical support of augmentation activities | None | | 7.4.A.1, 7.4.A.2 |
| 1.3.2. Develop, support, and maintain propagation and rearing facilities for silvery minnow. | 1.3.2a. Maintain and operate the Albuquerque BioPark Facility in accordance with RIP goals and objectives for each facility and with overall propagation facility goals. | Existing Resources: <ul style="list-style-type: none"> RGSM Genetics Management and Propagation Plan Funding Commitments: <ul style="list-style-type: none"> Reclamation, ABCWUA, and COA, - Operation and maintenance including egg collection - | None | | 7.4. A.5 - No activities or costs included in LTP. |

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| | 1.3.2b. Maintain and operate the Los Lunas Silvery Minnow Refugium Facility in accordance with RIP goals and objectives for each facility and with overall propagation facility goals. | Existing Resources: • RGSM Genetics Management and Propagation Plan Funding Commitments: · Reclamation and/or Program and NMISC - operations and maintenance | NMISC: - Continue agreements for management and operation of Los Lunas Silvery Minnow Refugium | | 7.4.A.5 |
| | 1.3.2c. Support technical assistance from the Southwestern Native Aquatic Resources & Recovery Center, including maintaining fish on-site in accordance with RIP goals and objectives for this facility and with overall propagation facility goals. | Funding Commitments: · TBD - Fund Southwestern Native Aquatic Resources & Recovery Center propagation activities | None | | 7.4.A.5 |
| | 1.3.2d. Support for addressing the operational refinements at the Minnow Sanctuary will be addressed by Reclamation, FWS, ISC and MRGCD with assistance from the ABCWUA if it is determined to be cost effective. | Funding Commitments: · Reclamation - Fund maintenance Reclamation, NMISC, MRGCD, to assist with improvements needed for fully operational facility - substrate, pumps etc. | None | | 7.4.A.5 |
| 1.3.3. Rear and maintain silvery minnow in captivity. | 1.3.3a. Collect silvery minnow eggs from wild populations and rear the young in captivity, with a goal of collecting approximately 500,000 eggs to meet annual stocking needs. | Existing Resources: · RGSM Genetics Management and Propagation Plan Funding Commitments: · NMISC - Assist with egg monitoring and egg collection in coordination with BioPark and Service · Reclamation - Included in 1.3.2a | None | | 7.4.A.2, 7.4.A.3, 7.4.A.4 |
| | 1.3.3b. Maintain a population with a goal of at least 100,000 silvery minnow of wild genetic origin in captivity. | Existing Resources: · RGSM Genetics Management and Propagation Plan Funding Commitments: · Refer to Action 1.3.2 above. | None | | 7.4.A.5, 7.4.A.6 |
| | 1.3.3c. Quantify and evaluate genetic diversity of wild and captive fish to ensure genetic diversity as part of Task 1.3.1b, Perform genetic evaluation. | Existing Resources: · RGSM Genetics Management and Propagation Plan · Genetics Workgroup Funding Commitments: · Reclamation - Fund genetics monitoring activities Other TBD | None | | See above |
| | 1.3.3d. Maintain sufficient numbers of silvery minnow to augment existing populations, as necessary. | Existing Resources: · RGSM Genetics Management and Propagation Plan Funding Commitments: · Refer to Action 1.3.2 above. | None | | See above |

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| 1.3.4. Augment MRG wild populations as necessary. | 1.3.4a. Evaluate the need for and make recommendations for augmentation as necessary. | Existing Resources: · RGSM Genetics Management and Propagation Plan · PVA model · Population monitoring · Egg monitoring Funding Commitments: · Reclamation - Fund Service staff to perform augmentation activities as needed | None | | 7.4.A.6, 7.4.A.7 |
| | 1.3.4b. Accomplish augmentation as needed and where feasible. | Existing Resources: · RGSM Genetics Management and Propagation Plan · PVA model · Population monitoring · Egg monitoring Funding Commitments: · Reclamation - Fund Service staff to perform augmentation activities | None | | 7.4.A.6, 7.4.A.7 |
| Element 1.4: RGSM Research, Monitoring, and Adaptive Management | | | | | |
| 1.4.1. Develop and implement fish population monitoring programs with sufficient reliability, precision, and accuracy for RIP needs. | 1.4.1a. Synthesize monitoring data sets (see Task 1.4.3a). | Funding Commitments: · Reclamation - Fund annual data synthesis activities including activities of Independent Science Panel | None | | 7.6.A.2 |
| | 1.4.1b. Convene a series of workshops to evaluate and redefine a silvery minnow population monitoring program based on RIP needs. | | | | |
| | 1.4.1c. Prepare and review a refined “Fish Population Monitoring Plan” based on workshops in Task 1.4.1b. | Funding Commitments: · Numerous agencies will assist in preparing this plan | None | | Not addressed in LTP. |
| | 1.4.1d. Implement, evaluate, and refine the monitoring program, as necessary. | Funding Commitments: · Numerous agencies will assist in these efforts | None | | 7.6.A.2 |
| | 1.4.1e. Conduct population monitoring until new program is in place. | Funding Commitments: · Reclamation - Fund population monitoring activities | None | | |
| 1.4.2. Identify and prioritize specific research and monitoring activities as input to AM process and for informing RIP actions. | 1.4.2a. Synthesize science data sets starting from program consensus data set and DBMS that will be used as a body of knowledge to guide development of science/monitoring plans. | Existing Resources: · Adaptive Management Plan Version 1 Funding Commitments: · Reclamation - Fund initial data synthesis activities including activities of Independent Science Panel | | | 7.6.A.3, 7.6.C.3 |
| | 1.4.2b. Using the synthesized dataset, work to achieve (1) consensus findings, (2) consensus conclusions, (3) alternative hypotheses, and (4) data gaps. | Funding Commitments: · Various agencies have committed to provide technical staff to participate in the Adaptive Management Committee | None | | 7.6.A.3, 7.6.C.3 |
| | 1.4.2c. Evaluate previous projects and develop a prioritized list of ongoing and future activities and related research. | Funding Commitments: · Various agencies have committed to provide technical staff to participate in the Adaptive Management Committee. | None | | 7.6.A.3, 7.6.C.3 |

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| | 1.4.2d. Convene a series of workshops to address specific questions or uncertainties related to the species. | Funding Commitments: · TBD, as needed · Multiple agencies will assist | None | | |
| 1.4.3. Conduct, evaluate, and refine monitoring activities. [Note: The list of tasks is not exhaustive and includes examples taken from Long-Term Plan.] | 1.4.3a. Monitor spawning and egg production. | Funding Commitments: · Reclamation - Fund spawning and egg monitoring activities | None | | 7.6.A, 7.6.B, 7.6.C, 7.6.A.2 |
| | 1.4.3b. Develop and implement a habitat monitoring plan based on the 2-year Pilot Habitat Monitoring Plan to monitor conditions, usage, and effectiveness of completed habitat restoration projects, including spawning and larval rearing habitat. | Existing Resources: · Habitat Restoration Workgroup products (Analysis & Recommendation Reports, mapping products, recommendations, Rapid Assessment Tools, matrix) · Effectiveness Monitoring Reports · PVA Model · Habitat Restoration Plans (basin-wide) · Inundation Analysis Model · Recruitment Analysis · Land use planning tools · Regional Water Plans · Geomorphic studies and reach plans conducted by ISC, Pueblos, USACE Funding commitments: · Numerous agencies will assist in preparing this plan | None | | 7.6.A, 7.6.B, 7.6.C |
| | 1.4.3c. Monitor water movement through the Middle Rio Grande Valley, including gauging of river flows, diversions, and returns, and provide data to water managers. | Existing Resources: · ET Toolbox · USGS gaging program · URGWOM · MRGCD infrastructure Funding commitments: · ABCWUA - Operate existing flow instrumentation · MRGCD - Operate and maintenance, expansion and refinement of water measurement infrastructure · NMISC - Fund USGS gaging · USACE - Fund USGS gaging · Reclamation - Fund USGS gaging, maintain ET Toolbox · BNANWR - Operate and maintain water measurement infrastructure | Not fully developed | | 7.2.C.4 |

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| | 1.4.3d. Conduct additional monitoring as needed. | Existing Resources: · HRW Monitoring reports · MPT monitoring plan · Santa Ana and Sandia Pueblo monitoring plans Funding Commitments: · TBD, as needed | None | | |
| 1.4.4. Conduct research on silvery minnow for the RIP. [Note: The list of tasks is not exhaustive and includes examples taken from Long-Term Plan.] | 1.4.4a. Determine factors that affect age structure, age-specific survival rates, and recruitment. | Existing Resources: · Existing studies that provide baseline for future research... Funding Commitments: · TBD, as needed · Multiple agencies will assist | None | | 7.6.A.1, |
| | 1.4.4b. Determine factors that affect growth rates of silvery minnow. | Funding Commitments: · TBD, as needed · Multiple agencies will assist | None | | 7.6.A.1, 7.6.C.1 |
| | 1.4.4c. Determine fecundity (average number of eggs per female) and maternity (proportion of young produced per female that reach maturity). | Funding Commitments: · TBD, as needed · Multiple agencies will assist | None | | 7.6.A.1, 7.6.C.1 |
| | 1.4.4d. Determine effective female:male gender ratio for spawning. | Funding Commitments: · TBD, as needed · Multiple agencies will assist | None | | 7.6.A.1, 7.6.C.1 |
| | 1.4.4e. Determine food habits of the silvery minnow. | Funding Commitments: · TBD, as needed · Multiple agencies will assist | None | | 7.6.A.1, 7.6.C.1 |
| | | | | | 7.6.A.1, 7.6.C.1 |
| 1.4.5. Continue to evaluate the viability of silvery minnow populations. [Note: The list of tasks is not exhaustive and includes examples taken from Long-Term Plan.] | 1.4.5a. Maintain and use population viability analysis (PVA) models in an adaptive management framework. | Existing Resources: · PVA model Funding commitments: · MRGCD - Fund PVA activities | MRGCD: - Fund PVA statistical data analysis efforts | | 7.6 |
| | 1.4.5b. Additional tasks to be added as developed by PVA workgroup. | Existing Resources: · PVA model Funding commitments: · TBD | None | | |

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| 1.4.6. Test and evaluate assumptions underlying the Hydrologic Objective and refine as appropriate. | 1.4.6a. Each year, as hydrologic and habitat conditions permit, test, evaluate and refine the assumptions underlying the Hydrologic Objective through the Adaptive Management process. | Funding Resources: <ul style="list-style-type: none">· Various agencies have committed to participating on the Adaptive Management Committee | None | Within first year | 7.2 |
| | 1.4.6b. Perform analysis of methods used for the Service's Hydrologic Objective with the population monitoring data set that was reconciled and approved by the PVA Workgroup and as needed work within the Adaptive Management Committee or PVA Workgroup to provide a recommendation on the data used to perform future analyses. | Existing Resources: <ul style="list-style-type: none">· Population monitoring data· PVA model Funding Resources: <ul style="list-style-type: none">· Various agencies have committed to participating on the Adaptive Management Committee | None | | |
| 1.4.7. Use the Ecological Limitations of Hydrologic Alteration (ELOHA) or other similar framework to evaluate historic and future flow conditions for producing riverine and riparian habitat. | 1.4.7a. Develop Rio Grande ELOHA or other similar framework for use in PVA modeling, habitat restoration planning, environmental flow management, and other RIP activities. | Existing Resources: <ul style="list-style-type: none">· PVA model | None | | |
| Element 1.5: Additional Wild Self-Sustaining Populations of RGSM | | | | | |
| 1.5.1. Support the development of additional wild self-sustaining populations of silvery minnow outside of the MRG. | 1.5.1a Revise and refine “RGSM Genetics Management and Propagation Plan” including captive rearing and propagation to augment the population and identification of reintroduction sites to start new populations. | Existing Resources: <ul style="list-style-type: none">· RGSM Recovery Plan· The Services Reintroduction Biologist's deliverables Funding Commitments: <ul style="list-style-type: none">· ABCWUA - BioPark support· COA - BioPark operations· NMISC - Los Lunas Silvery Minnow Refugium Facility management and operation· Reclamation - BioPark propagation and augmentation activities, fund Service and BioPark staff to perform technical support of augmentation activities· Service: Cooperate with the RIP for development of a RGSM Genetics Management and Propagation Plan | None | | |
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| | 1.5.1c. Contribute to the second 10J population site selection. | Note: Coordinate with Tasks 1.1.1.b; 1.1.1.c; 1.1.2.b; 1.2.1.d; & 1.4.3.a Funding Commitments: · TBD, as needed | None | | |
| | 1.5.1d. Implement reintroduction activities as approved based on results of evaluation, such as viability analysis. | Funding Commitments: · TBD, as needed | None | | |

Element 2.1: Flycatcher Territory Establishment and Nesting Success

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| 2.1.1. Create habitat conducive to territory establishment and nesting success. Determine the viability of Southwestern Willow Flycatcher populations and specifically the habitat patches they occupy. | 2.1.1a. Develop and implement a habitat restoration strategy or model, resulting in a prioritized list of habitat projects. Consider prioritized locations based on water regime, soil conditions/characteristics, salt cedar leaf beetle presence/abundance, and distance to nearest Southwestern Willow Flycatcher populations. Incorporate monitoring results and lessons learned from existing habitat projects into the planning and construction of future projects. | Existing Resources: · Flow 2D/SRH-IB/2D/3D models for hydrology · WIFL monitoring territories · Beetle monitoring locations · Decision support system · Rapid Assessment Tool in development · Habitat Restoration Workgroup tools such as mapping, SWFL habitat suitability modeling Funding commitments: · Reclamation - Fund Flycatcher monitoring activities | Not fully developed at this time | | |
| | 2.1.1. b. Maintain Southwestern Willow Flycatcher recovery goals within the Middle Rio Grande Management Unit by creating or preserving 2 times the average territory size typically used by clusters of 10 territories (2.5 acres) required by the 100 territories which is the equivalent of 500 total acres. Trigger active restoration projects if total acreage available to flycatchers falls below 500 acres (either naturally or created by agencies). | Existing Resources: · Artificially disturb areas via fire or mechanical treatments, herbicides, or soil amendments. · Create willow swales and implement experimental techniques to create different age class of willows · Use Hink and Ohmart mapping to estimate suitable habitat acreage available (1x/5yrs). · Use monitoring data to evaluate population and ensure territory numbers remain above 100 (recovery goal) · Use nesting success as an indicator for population trends (somewhere below 40% success rate and need to re-evaluate how much habitat available to ensure not a limiting factor · Use Restoration Analysis Recommendation Report for areas to actively create habitat if necessary Funding commitments: · COA - Bosque maintenance · USACE - Flycatcher habitat restoration, management, and monitoring · Reclamation - Flycatcher habitat restoration, management, and monitoring · BDANWR - Contribute to planning, designing and construction of projects to benefit the species such as: Channel Realignment River Mile 81 Project, degradation management project, river bar management, minnow refugia, living streams | MRGCD: - Enhance coordination of water operations - Modify operations to support instream habitat and flow management - Develop Annual Operating Plan - Participate in Supplemental Water Pool in Abiquiu - Manage surplus/excess flows to benefit species and bear conveyance loss - Construct siphon to manage water supply at San Acacia - MRGCD return flow collection system - Create habitat by assisting in obtaining funding, and/or land with goal of 75 acres over 5 years - Cooperate with groundwater lease program NMISC: - Maintain existing overbank habitat constructed by the State in Albuquerque and Isleta reaches - Continue to contribute depletion offsets for the State's habitat | | |

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| | | | restoration projects in Albuquerque and Isleta reaches <ul style="list-style-type: none">- Continue habitat restoration depletion offset program for the USACE MRG Floodway Projects- Lease water from SWR for habitat depletion offsets Reclamation: <ul style="list-style-type: none">- Implement Supplemental Water Program- Pump and convey water from LFCC to the Rio Grande- Coordinate to successfully accomplish environmental water operations BDANWR: <ul style="list-style-type: none">- Not fully developed at this time | | |
| | 2.1.1c. Aim to be proactive in replacing habitat prior to being degraded from salt cedar leaf beetles with native species within the Collaborative Program boundaries. | Existing Resources: <ul style="list-style-type: none">· Hink and Ohmart mapping to find degraded patches; develop techniques to quickly remove tamarisk and prepare sites for natural or artificial willow planting at sites most suitable for this restoration· Texas A&M beetle future distribution model (James Tracy) Funding commitments: <ul style="list-style-type: none">· See commitments in Action 2.1.1b above | Not fully developed | | |
| | 2.1.1d. Determine total area of suitable habitat and the population needed to sustain recovery goals. Review historic and current Southwestern Willow Flycatcher territory locations and dispersal. | Existing Resources: <ul style="list-style-type: none">· Flycatcher Recovery Plan· Federal Register documentation for flycatcher listing and critical habitat· Flycatcher territory monitoring data· Flycatcher mapping data (Hink and Ohmart 2002, 2005, 2008, 2012) HRW products including Rapid Assessment Tool, A& R reports, mapping products Funding commitments: <ul style="list-style-type: none">· USACE - Fund Flycatcher monitoring· Reclamation - Fund Flycatcher monitoring, implement Flycatcher Management Plan· Service - Prepare Flycatcher Recovery Plan | . | | |

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| | 2.1.1e. Review or summarize temporal viability of habitat (how long patches remain suitable under varying conditions – learn from experiences rangewide, not just MRG). | Existing Resources: <ul style="list-style-type: none"> · Hink and Ohmart mapping – compare between years · HRW products including Rapid Assessment Tool and mapping products | Not fully developed at this time | | |
| | 2.1.1f. Use the Ecological Limitations of Hydrologic Alteration (ELOHA) or similar framework / Rapid Assessment Tools (TBD) to evaluate historic and future flow conditions for producing riverine and riparian habitat. | Develop Rio Grande ELOHA or similar framework/Rapid Assessment Tools (TBD) for use in PVA modeling, habitat restoration planning, flycatcher habitat sustainability, environmental flow management, and other RIP activities. | Not fully developed at this time | | |
| 2.1.2. Create hydrologic conditions conducive to territory establishment and nesting success. Implement provisions of Drought Management Plan when triggered. | 2.1.2a. Convene Action Team twice per year: once prior to Southwestern Willow Flycatcher spring migration (prior to May) to discuss runoff forecasts and to coordinate activities, and once after the breeding season (after August) to evaluate population trends and identify successful or failed management activities. Report to larger group annually. | Existing Resources: <ul style="list-style-type: none"> · FLOW 2D · SRH - Restoration Analysis Recommendation Report · Flycatcher monitoring data Funding Commitments: <ul style="list-style-type: none"> • ABCWUA - San Juan-Chama flow efficiency, Establish 30,000 Acre Foot conservation storage pool in Abiquiu with environmental group. • MRGCD - Manage conveyance, operational changes, develop and administer groundwater leasing program, minimize entrainment, provide Isleta and San Acacia discharges, provide return flow/outfalls • NMISC - Assist in management of river flows, seek opportunities to obtain water for strategic water reserve, utilize strategic water reserve for ESA purposes, provide up to 6,000 acre-feet of relinquishment credit over 10 years • USACE - Investigate and evaluate facilitating spawning and recruitment flow through reservoir operations • Reclamation - Implement Supplemental Water Program, Pump and convey water from Low Flow Conveyance Channel, and use SJC Project waivers of mandatory release dates from Heron Reservoir • Various agencies to provide depletion offsets | Not fully developed at this time | | |
| | 2.1.2b. Ensure sources of slow moving surface water available to flycatcher habitat patches when possible (i.e. In times of extreme drought surface water may not be available to all patches), including the possibility of non-river water (i.e. returns from irrigation and storm water, springs) for creation of habitat within 50-100 meters to inform Action 2.1.1. | Existing Resources: <ul style="list-style-type: none"> · Drought Management Plan · Annual Operating Plan Funding Commitments: <ul style="list-style-type: none"> · Refer to commitments in 2.1.2a above. | Not fully developed at this time | | |

| Element 2.2: Flycatcher Research, Monitoring, and Adaptive Management | | | | | |
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| 2.2.1. Assess, identify and prioritize specific science activities that address overall Program goals. | 2.2.1a. Use existing studies and data augmented by modeling techniques to predict both overbank flooding at certain flows and vegetation recruitment based on groundwater level, soil composition, seed source, etc. | Existing Resources: · FLOW 2D · SRH - Restoration Analysis Recommendation Report · Flycatcher monitoring data · Corps habitat mapping on San Acacia and Isleta Funding Commitments: · Various agencies have committed to provide technical staff to participate in the Adaptive Management Committee | Not fully developed at this time | | |
| | 2.2.1b. Use existing studies and data augmented by modeling to predict spread and impacts associated with salt cedar leaf beetles, potential hybridization amongst the various strains of beetles. | Existing Resources: · Texas A&M beetle future distribution model (James Tracy) | Not fully developed at this time | | |
| | 2.2.1c. Convene the multi-disciplinary Adaptive Management Committee including Flycatcher experts | Funding Commitments: · Various agencies have committed to provide technical staff to participate in the Adaptive Management Committee | Not fully developed at this time | | |
| 2.2.2. Develop and implement monitoring programs using established protocols. | 2.2.2a. Continue both population presence/absence surveys and nest monitoring in accordance with standardized Southwestern Willow Flycatcher survey/nest monitoring protocols from Stateline to Elephant Butte Reservoir. | Existing Resources: · Flycatcher survey and nest monitoring protocol Funding Commitments: · USACE - Fund Flycatcher monitoring · Reclamation - Fund Flycatcher monitoring, implement Flycatcher Management Plan | Not fully developed at this time | | |
| | 2.2.2b. Map the areas of suitable Southwestern Willow Flycatcher habitat once every 5 years. Develop tools to predict plant succession for future available habitat | Existing Resources: · Hink and Ohmart mapping; Rapid Assessment Tool in development; possible DSS for vegetation establishment and viability Funding Commitments: · Reclamation - Fund Flycatcher monitoring | Not fully developed at this time | | |
| | 2.2.2c. Continue mapping areas of salt cedar leaf beetle presence and abundance annually. | Existing Resources: · Tamarisk Coalition data Funding Commitments: · Service - Fund Flycatcher monitoring | Not fully developed at this time | | |
| | 2.2.2d. Monitor restoration sites once project complete and evaluate potential effectiveness (may take 10+ years depending on biological opinion of potential habitat suitability and/or flycatcher presence in the future). | Existing Resources: · Previous vegetation transect and quantification reports - complete new monitoring reports where necessary and compare · Existing flycatcher restoration projects within region Funding Commitments: · Agencies restoring flycatcher habitat will monitor their sites | Not fully developed at this time | | |

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| Element 2.3: Flycatcher Populations Outside of the Program Boundaries | | | | | |
| 2.3.1. Coordinate and share information rangewide of other Southwestern Willow Flycatcher populations. | 2.3.1a. Convene and/or participate in Southwestern Willow Flycatcher forums with biologists familiar with recovery efforts across the Southwestern Willow Flycatcher’s breeding range to discuss ‘hot topics’ such as salt cedar encroachment, salt cedar leaf beetle distribution, and Southwestern Willow Flycatcher population abundance and trends. | Existing Resources: <ul style="list-style-type: none">· Wildlife Symposiums· Critter Meetings Funding Commitments: <ul style="list-style-type: none">· TBD | None | | |
| | 2.3.1b. Understand how other land managers have dealt with salt cedar leaf beetle infestations and their techniques in contending with issues brought forth with those infestations. | Existing Resources: <ul style="list-style-type: none">· Beetle Symposiums/Meetings Funding Commitments: <ul style="list-style-type: none">· TBD | None | | |
| | 2.3.1c. Coordinate with rangewide database of Southwestern Willow Flycatcher detections and territory locations. | Existing Resources: <ul style="list-style-type: none">· Rangewide flycatcher database Funding Commitments: <ul style="list-style-type: none">· USGS and Service maintain rangewide database | None | | |
| Element 3.1: RIP Management | | | | | |
| 3.1.1. Administer the RIP. | 3.1.1a. Schedule and coordinate Program activities, including meetings of executive and technical committees. 3.1.1b. Establish and coordinate independent science panel. | Funding Resources: <ul style="list-style-type: none">· Reclamation - Fund program management activities Funding Resources: <ul style="list-style-type: none">· Reclamation - Fund Independent Science Panel activities | None None | | |
| | 3.1.1c. Develop and administer required internal processes such as peer review process, information dissemination, etc. | Funding Resources: <ul style="list-style-type: none">· Reclamation - Fund Independent Science Panel, peer review, and program management activities | None | | |
| | 3.1.1d. Fiscal management (i.e., budgeting, funding and contracting). | Funding Resources: <ul style="list-style-type: none">· Reclamation - Fund program management activities | None | | |
| | 3.1.1e. Reporting and accountability under program documents, including annual report to the U.S. Fish and Wildlife Service on implementation and effectiveness of RIP actions, and any other reporting needed for ESA compliance. | Funding Resources: <ul style="list-style-type: none">· Reclamation - Fund program management activities | None | | |
| 3.1.2. Implement and coordinate RIP activities. | 3.1.2a. Revise and update Draft 2010 Long-Term Plan (LTP). | Funding Resources: <ul style="list-style-type: none">· Reclamation - Fund program management activities | None | | |
| | 3.1.2b. Prepare, update, and implement Long Term Plan, Adaptive Management Plan, Action Plan and Annual Work Plans. | Funding Resources: <ul style="list-style-type: none">· Reclamation - Fund program management activities | None | | |

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| | 3.1.2c. Communication and outreach including ongoing public relations for the program and new communication planning. | Funding Resources: · Reclamation - Fund program management activities | None | | |
| | 3.1.2d. Implement priority Program projects. | Funding Resources: · Reclamation - Fund program management activities | None | | |
| | 3.1.2e. Develop RIP Drought Management Plan. | Funding Resources: · Various agencies have committed resources to prepare this plan | None | | |
| | 3.1.2f. Integrate tools and strategies from plans such as the Drought Management Plan, Sediment Management Plan, Habitat Management Plans, etc. as approved. | Funding Resources: · Reclamation - Fund program management activities | None | | |
| | 3.1.2g. Establish Action Team to develop annual recommendations and presentations for the EC and water management agencies on that year's water operations and management as related to minnow and flycatcher, including the minnow spawn [Task 1.1.2a] until the onset of the next spawning period [Task 1.2.2a]. The Action Team will develop protocols, including the use of the "Hydrologic Objective" (USFWS, 2013) as an annual starting point for discussion of hydrograph parameters, along with the Adaptive Management Team proposal and other relevant information. Using the protocols, match the current year's hydrologic forecast to the appropriate Age 0 production strategy and use this information as a tool in making management recommendations to the EC in view of hydrologic realities and habitat conditions; implement as appropriate with provision for hypothesis-testing, monitoring and evaluation. In any given year, if it is determined that the hydrologic forecast is such that it will not support the Age 0 strategy, then implement as appropriate the Age 1 strategy, with provision for hypothesis-testing, monitoring and evaluation. | Funding Resources: · Various agencies have committed to participating on the Action Team | None | Action Team established within first 6 months; draft protocols within first 12 months, final protocols within first 24 months | |

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| 3.1.3. Establish and maintain a Database Management System for RIP needs, including all appropriate data generated through implementing RIP actions. | 3.1.3a. Procure original datasets from investigators in a flat-file, fixed format. | Funding Commitments: · Reclamation - Fund annual data synthesis activities | None | | |
| | 3.1.3b. Reconcile all data errors, inconsistencies, and discrepancies with data collectors. | Funding Commitments: · Reclamation - Fund annual data synthesis activities including activities of Independent Science Panel | None | | |
| | 3.1.3c. Establish a “Data Assembly, Storage, and Quality Control Protocol” that provides data formats, dates for data submission, and conditions for data releases and accessibility to the data by the general public. | Funding Commitments: · TBD | None | | |
| | 3.1.3d. Assemble available data. | Funding Commitments: · TBD | None | | |
| | 3.1.3e. Coordinate future data assembly and quality control through an established “Data Assembly, Storage, and Quality Control Protocol.” | Funding Commitments: · TBD | None | | |
| 3.1.4. Develop sufficient progress metrics for listed species. | 3.1.4a. Develop and apply agreed-upon demographic metric(s) to assess population trends and progress toward recovery under the RIP (see Section II.1, Action 1.4.1 for development of population monitoring program). | Funding Commitments: · Various agencies have committed resources (staff time) to complete this task | None | Completed in first 9 months for all metrics, except CPUE. Metrics involving CPUE completed in first 24 months of RIP | |

5. RIP Long Term Plan

REVISED DRAFT LONG TERM PLAN

MIDDLE RIO GRANDE ENDANGERED SPECIES COLLABORATIVE PROGRAM

July 2013

DISCLAIMER

This draft is under review by the Middle Rio Grande Endangered Species Collaborative Program. It should not be cited.

Endorsed by EC July 18, 2013

Table of Contents

| | |
|---|----|
| APPENDICES | iv |
| Acronyms, Abbreviations, and Definitions | 1 |
| Definitions..... | 2 |
| 1.0 Introduction..... | 3 |
| 1.1 Collaborative Program LTP Development..... | 3 |
| 3.0 Long Term Plan and Recovery Elements | 6 |
| 3.1 Program Implementation Priorities | 6 |
| 4.0 [This section reserved]..... | 7 |
| 5.0 [This section reserved]..... | 7 |
| 6.0 Program LTP Categories..... | 8 |
| Table 6.1 Minnow & Flycatcher Recovery Plan Categories of Actions..... | 8 |
| 6.2 LTP Activity Categories..... | 8 |
| 7.0 LTP Categories and Types of Activities | 9 |
| 7.1 Physical Habitat Restoration and Management | 9 |
| 7.2 Water Management | 10 |
| 7.3 Predator Control | 10 |
| 7.3. A. Predation/Competition/Hybridization/Non-native Management (minnow)..... | 10 |
| 7.3. B. Predation/Competition/Non-native Management (flycatcher) | 11 |
| 7.4 Population Management (minnow)..... | 12 |
| 7.5 Water Quality Management (minnow) | 12 |
| 7.6 Research, Monitoring, and Adaptive Management..... | 13 |
| 7.7 Policies and Laws..... | 13 |
| 7.8 Public Information and Outreach | 14 |
| 7.9 Program Management | 15 |
| 7.10 Biological Opinion Activities Not in Recovery Plan | 15 |
| Table 7.1 Lead Agency Acronyms | 16 |
| Table 7.2 Long Term Plan Categories | 17 |

APPENDICES

- A. [U.S. Fish & Wildlife Service's Hydrologic Objective](#)
- B. [Southwestern Willow Flycatcher Recovery Plan](#)
- C. [Rio Grande Silvery Minnow Recovery Plan](#)
- D. [Future LTP Activities](#)
- E. [Past LTP Activities](#)

Endorsed by EC July 18, 2013

Acronyms, Abbreviations, and Definitions

| Acronyms and Abbreviations | |
|--|--|
| AM | Adaptive Management |
| BiOp (Also: BO) | Biological Opinion |
| Collaborative Program (Also: Program, MRGESCP, CP) | Middle Rio Grande Endangered Species Collaborative Program |
| EC | Executive Committee |
| ESA | Endangered Species Act |
| Flycatcher (Also: SWFL, SWWF) | Southwestern willow flycatcher |
| LFCC | Low Flow Conveyance Channel |
| LTP | Long Term Plan |
| Minnow (Also: RGSM) | Rio Grande silvery minnow |
| MOA | Memorandum of Agreement |
| MOU | Memorandum of Understanding |
| MRG | Middle Rio Grande |
| NGO | Non-government Organization |
| Reclamation (Also: BOR) | Bureau of Reclamation |
| RIP | Recovery Implementation Program |
| RPA | Reasonable and Prudent Alternative |
| RPM | Reasonable and Prudent Measure |
| Service (Also: FWS, USFWS) | U.S. Fish and Wildlife Service |
| USACE (Also: Corps, COE) | U.S. Army Corps of Engineers |

Definitions

Terms used in this Long Term Plan shall have the meaning ascribed to them in the Program Document. For ease of reference, definitions for terms used commonly in this LTP are set forth below.

Executive Committee: The Collaborative Program's governing committee of the RIP. The EC is responsible for all decision-making related to the RIP and for ensuring that the goals of the RIP are achieved in a timely manner. Primary responsibilities for the EC are discussed in the Program Document, Section IV.A.1 and in the By-laws.

Lead Agency: The agency responsible for ensuring that the project work is completed. A lead agency may be a Federal, State, Local, Tribal, or other entity.

Listed Species: Federally listed species under the ESA, with special emphasis on the Rio Grande silvery minnow and the Southwestern willow flycatcher.

Long Term Plan: A guidance document that provides an evolving inventory of beneficial activities that may be implemented by the RIP to meet its purposes and goals.

Middle Rio Grande: The area from the headwaters of the Rio Chama watershed and the Rio Grande, including tributaries, from the New Mexico-Colorado state line downstream to the intersection of the Rio Grande with the northernmost boundary of the full pool of Elephant Butte Reservoir.

Proposed Species: any species of fish, wildlife or plant that is proposed in the Federal Register to be listed under section 4 of the ESA [50 CFR §402.02] and incorporated by the EC into the RIP.

Signatory(ies): Signer(s) of the RIP Cooperative Agreement.

1.0 Introduction

The Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program) was established by the Program participants to protect and improve the status of listed species along the Middle Rio Grande (MRG) and to simultaneously protect existing and future regional water uses while complying with state and federal laws, including Rio Grande Compact delivery obligations. “Listed species” means federally listed species under the Endangered Species Act (ESA), with special emphasis on the Rio Grande silvery minnow (minnow) and the Southwestern willow flycatcher (flycatcher).

This revised LTP serves as a guidance document providing an inventory of beneficial activities that may be implemented by the RIP participants to meet the RIP’s purposes and goals. This LTP is based on the framework of the silvery minnow and flycatcher recovery plans issued by the Service in 2010 and 2002, respectively. Future adjustments to the LTP will reflect new information on the hydrology of the MRG and on the life history of the species and will consider the Service’s recommendations during its annual sufficient progress evaluation, any revised species recovery plan actions, and newly listed or proposed species. The LTP will also incorporate information from the adaptive management process.

1.1 Collaborative Program LTP Development

The Collaborative Program produced an initial draft LTP in 2003 and formally approved a revised LTP in November 2006. The 2006 LTP was intended to: 1) serve as a road map for implementing activities within the scope of the Collaborative Program; 2) provide accountability through measurable objectives and an annual Collaborative Program assessment process; and 3) help integrate federal and non-federal budget processes for providing funding for future activities. The LTP was to be reviewed and updated annually to reflect actual appropriations and any changes to Collaborative Program priorities and budget estimates. The 2006 LTP included activities that addressed the U.S. Fish and Wildlife Service (Service) March 2003 Biological Opinion (2003 BO) requirements on MRG water operations, river maintenance projects, and flood control operations as well as actions to assist with recovery of the listed species. The 2006 LTP also incorporated necessary elements from the 2003 BO amendment of August 2005 (which considered increased minnow populations); and the June 2006 BO amendment (which considered the effects of the Service’s designation of critical habitat for the flycatcher).

In 2009, the EC directed efforts to pursue implementation of the Collaborative Program through a RIP to increase the focus on recovery of the listed species and to serve as an ESA compliance vehicle. The EC directed development of a new LTP based on the framework of the silvery minnow and flycatcher recovery plans as the mechanism for advancing the Collaborative Program’s objectives. The Collaborative Program’s goals for the RIP are to:

1. Conserve and contribute to recovery of the proposed and listed species.
 - Support the development of self-sustaining populations through implementation of the RIP Action Plan and Annual Work Plan.
 - Continually identify the critical scientific questions and uncertainties that will be addressed through adaptive management.
 - Assist in avoiding jeopardy to the species and adverse modification of designated [critical habitat](#) within the Program area.
2. Protect existing and future water uses.
 - Provide a mechanism for ESA compliance for actions that are the subject of Reclamation's Biological Assessment (January 16, 2013) and U.S. Fish and Wildlife Service Bosque del Apache National Wildlife Refuge's Biological Assessment (February 22, 2013).
 - Provide a process for streamlined Section 7 consultation for future water uses needing compliance with the ESA.
 - Obtain hydrologically sustainable solutions for the species.

In 2011, the EC directed preparation of additional documents that were needed to describe and implement the RIP. These included a Cooperative Agreement for execution by participating entities; a Program Document governing the RIP; and a RIP Action Plan identifying activities to be implemented over a five-year time frame. An adaptive management (AM) guidance document was also produced to assist in implementation of AM throughout the recovery implementation process. These RIP documents will be considered in Reclamation's biological assessment revision and subsequently in relevant BOs that rely on the RIP as the conservation measure. The LTP has been revised to reflect the Collaborative Program's direction in this process.

The RIP Action Plan will draw from the LTP inventory as a source of information for guidance on future activities and from information developed through the AM process in identifying the specific activities for implementation over a constant five-year planning horizon. The EC must approve Action Plan activities prior to their inclusion and implementation, while the inventory of activities in the LTP does not require approval by the EC until the selected activities are proposed for inclusion in the Action Plan. While some RIP participants do not currently agree upon the criteria in the Service's current species recovery plans nor upon all activities and tasks in the LTP, the participants will seek to come to agreement on these activities and tasks to ensure that implemented activities advance the accomplishment of the RIP's goals. The RIP participants will implement activities and tasks pursuant to annual work plans that tier from the RIP Action Plan. The EC will update these documents in a manner consistent with the RIP's

purposes and goals and in consideration of new information, input from the Service, and other RIP evaluations. These linkages are designed to assure that the RIP provides meaningful benefits to the species and continues to serve as the ESA coverage vehicle by providing the ESA conservation measure for the effects of water uses and management actions in the Program area.

2.0 [This section reserved]

Endorsed by EC July 18, 2013

3.0 Long Term Plan and Recovery Elements

This revised LTP follows the general framework of categories, activities, and priorities of the two species recovery plans. It describes the basis for defining the LTP categories and priorities, and identifies historic, ongoing and potential future Program activities.

The [flycatcher recovery plan](#) (Service, 2002) and revised [minnow recovery plan](#) (Service, 2010) include many recovery elements and goals that are directly related to the scope of the Collaborative Program and implementation of the RIP, and some that are outside of the Program area. The revised minnow recovery plan identifies specific management actions, priorities, time frames, and estimated budgets for activities in the MRG. The flycatcher recovery plan identifies several components and priorities to achieve recovery that can be translated into Program activities. Recovery plans are reevaluated approximately every five years and modified by the Service based on new scientific or technical information. Applicable actions in recovery plans and revisions to existing plans will be incorporated into the LTP. These species recovery plans are appended to the LTP.

3.1 Program Implementation Priorities

Priorities for implementing LTP activities that benefit the flycatcher, minnow, or other proposed or listed species, are defined in the five-year RIP Action Plan as determined by the Signatories. Schedules will be developed under the RIP Action Plan for implementation of future Program projects/activities based on RIP priorities, including projected budgets, logical project development sequence and adaptive management processes. Generally, the priorities are consistent with those provided in the species recovery plans. However, adjustments in the LTP and RIP Action Plan are made to accommodate the realities of RIP implementation and information that is specific to the Program Area. For instance:

- Activities associated with BO requirements and conservation recommendations may have a higher priority than those identified in the recovery plans.
- The status of species in the MRG may indicate a higher priority for some activities than indicated in the recovery plans.
- Even though it is not included as a priority in the species recovery plans, RIP management is listed as a Collaborative Program priority. Without management and staff, there is no implementation of the Program.
- Public support for the Collaborative Program, public information and outreach will receive a higher priority in the LTP, annual budgets and work plans than noted in the species recovery plans.

- Some recovery plan actions may not apply to the MRG and are not included in the LTP, but may be included later under more general categories defined in the LTP.
- Completed, ongoing, and future Program projects and activities are included in the appropriate LTP categories to link past efforts to recovery actions.
- The LTP creates flexibility such that proposed and newly listed species may receive conservation benefits under the RIP.

4.0 [This section reserved]

5.0 [This section reserved]

Endorsed by EC July 18, 2013

6.0 Program LTP Categories

In order to establish a close linkage among the flycatcher recovery plan, the minnow recovery plan and RIP activities to benefit the listed species, LTP categories correspond to major elements in the species recovery plans. Each species recovery plan includes major categories of actions as shown in Table 6.1:

Table 6.1 Minnow & Flycatcher Recovery Plan Categories of Actions

| Minnow Recovery Plan Categories of Actions | Flycatcher Recovery Plan Categories of Actions |
|---|--|
| <ul style="list-style-type: none"> • Research • Monitoring • Habitat needs • Propagation and genetics • Non-native species management • Water management • Adaptive management • Public awareness and education • Augmentation and reestablishment | <ul style="list-style-type: none"> • Habitat improvement • Water management • Habitat protection and conservation • Habitat expansion • Predator control • Population monitoring • Research • Public education and outreach • Law enforcement policies and agreements • Tracking recovery progress |

6.2 LTP Activity Categories

The similarities in major elements and types of activities for the two species allow definition of functional categories for the LTP that can be related to the elements in the species recovery plans.

The activities proposed within each of these categories address needs of the listed species. In addition, the LTP categories recognize that some activities benefit both species. All RIP activities that benefit the species fit within the LTP categories. The major Program categories derived from and corresponding to species recovery plans are:

- Physical habitat restoration and management
- Water management
- Predator/non-native control
- Population management (minnow)
- Water quality management (minnow)
- Research, monitoring and adaptive management
- Policies and laws
- Public information and outreach
- Program management

Sub-categories are identified for minnow, flycatcher, and both minnow and flycatcher, with the exception of population and water quality management, which apply only to the minnow.

7.0 LTP Categories and Types of Activities

Summaries of the LTP activities describe the benefits to species, the agency/party implementing the project, recovery plan priority, recovery plan elements/sub-elements, LTP category, ESA compliance requirement, projected duration, funding source, references, and project reports. In addition, future activity summaries include an estimated cost, a list of activities that must occur prior to project implementation, and a list of activities that are dependent on completion of the project.

These future activities are to be viewed as an inventory of projects and activities that could be included in the RIP Action Plan and annual work plan should several decision points within an AM framework indicate the need. Other activities are to be viewed as ongoing or required on a yearly basis. Annually, the RIP will undertake prioritization of activities to implement within available resources; therefore, the inclusion of an activity in the LTP does not imply that it will be implemented. Decisions on funding an activity will be made during the development of the RIP Action Plan and annual work plan. Implementation of LTP activities is subject to availability of federal funding and in-kind cost share contributions.

Potential future activities appear on the Collaborative Program website at [Future LTP Activities](#) and past activities are found at [Past LTP Activities](#). Both future and past activities have been organized to correspond to LTP categories described in Section 6.2. Activities have been numbered 7.1 through 7.10 in accordance with the following LTP categories.

7.1 Physical Habitat Restoration and Management

Habitat restoration and improvement activities primarily include physical manipulations of the Rio Grande channel (riverine restoration) and adjacent bosque (riparian restoration) to benefit the proposed and listed species. Habitat restoration may also include employing passive techniques that may be used to alter the current channel and bosque to benefit the species. Habitat restoration priorities include creating new minnow and flycatcher habitat, and restoring or enhancing existing habitat to support the recovery objective of both species, as well as proposed species addressed by the RIP. Planning, design, construction, and monitoring of habitat restoration projects will be components of each restoration and improvement project.

The intent of physical habitat restoration and management for the minnow is to provide potential habitat in order to achieve high reproduction and recruitment to subsequent age classes, and to maximize genetic diversity. This restoration involves both construction of new habitat patches and managing habitats through provision of flows. Restoration priorities include increasing areas of inundation and/or floodplain connectivity (features providing low to moderate-velocity habitat types commonly used by minnow), restoring

preferred minnow silt and sand substrates, and projects and provision of flows that address reach connectivity. The concept of reconfiguring sections of the river channel in the Cochiti, Angostura, and San Acacia reaches to provide habitat for the silvery minnow at lower spring flows could be further developed to provide better habitat during prolonged drought.

A broader distribution of flycatcher populations is desirable. Priorities are placed on restoration in the vicinity of currently occupied habitat to maximize the probability of colonization. Once created or restored, habitats will be managed to reap benefits for as long as possible through activities including monitoring, replanting, removal of non-natives, provision of overbank flows, or pumping to sustain moist soil.

7.2 Water Management

The LTP will continue to be updated to include strategies and concepts that seek to refine water management within the MRG consistent with the goals and principles of the RIP for the purposes of both improving the status of the listed species and protecting existing and future human uses.

Water management strategies that have been implemented include, but are not limited to, acquisition of supplemental water; operation of the Low Flow Conveyance Channel pumps; exercise of increased flexibility in reservoir operations; and development and use of the New Mexico Strategic Water Reserve. The LTP will also include consideration, evaluation, and potential implementation of conservation storage, acquisition of additional water rights and water through leasing, as well as other potential water management concepts depending on need, feasibility, overall benefit, and funding availability.

In addition, the Service's Hydrologic Objective [<<hyperlink TBD>>](#) reflects the Service's hypotheses regarding optimal flow conditions to support the species. It is recognized that these objectives may not be hydrologically achievable in every year. There is agreement among all Signatories that these flow hypotheses will be refined as more data and analysis is incorporated. This LTP incorporates these as hypotheses to be tested through adaptive management and as information that the RIP Action Team will use as a tool in making its management recommendations in view of the current hydrologic realities and current habitat conditions in any given year.

7.3 Predator Control

7.3. A. Predation/Competition/Hybridization/Non-native Management (minnow)

Of the multiple threats faced by the silvery minnow, competition and predation are included among those not well understood. Competition and/or hybridization from the introduction and spread of non-native fish species, predation by non-native fishes, and predation by birds and

mammals were all identified as listing factors for the silvery minnow. Predation is a natural part of the ecology of the silvery minnow; however, the importance of this factor is largely unknown.

7.3. B. Predation/Competition/Non-native Management (flycatcher)

Threats faced by the flycatcher may include: 1) predation by general nest predators; 2) parasitism by brown-headed cowbirds; 3) toppling or destruction of flycatcher nests by cattle, an impact which has been insignificant to date along the Middle Rio Grande; 4) effects of conspecifics on site occupancy and reproductive success; and 5) loss of habitat due to salt-cedar leaf beetle.

Natural predators to flycatchers' eggs and nestlings include snakes, weasels, raccoons, foxes, and other predatory birds. Predation rates increase in situations where canopy cover decreases and nest exposure increases (e.g. situations where vegetation is stressed due to absence or overabundance of water, vegetation overmaturity, or salt-cedar leaf beetle impacts).

Cowbird parasitism has been well-studied in the Middle Rio Grande and, while cowbird parasitism is prevalent, it is not currently thought to be a major stressor to the flycatcher. The most effective defense in cowbird parasitism is to provide adequate suitable habitat for nesting flycatcher populations. This will provide buffers and cover to hide flycatchers nests from cowbird parasites.

Nest loss due to cattle grazing is also not thought to be a major stressor to the flycatcher in the Middle Rio Grande because historic studies have proven the cattle grazing in the San Marcial area have had little effect on flycatchers or flycatcher habitat. However, in years of extreme drought or in situations where vegetation is already stressed from other environmental factors (i.e. freeze event, overmaturity, etc.), cattle grazing may make a dire situation worse on vegetation. Overgrazing would also negatively affect vegetation health. Nest loss is typically associated with predation, parasitism or abandonment. On very rare occasions nests may be lost due to a weather event and on even more of a rare occasion lost due to cattle or other grazers.

The presence of other willow flycatcher subspecies in flycatcher breeding habitat early in the breeding season may affect site colonization, site occupancy, and reproductive success. The extent of this problem is not currently known.

A potential threat to the flycatcher is the salt-cedar leaf beetle which appears to be spreading rapidly in New Mexico. The RIP participants generally agree that the entities responsible for releasing the beetle should be responsible for studying its spread and control, and for implementing solutions. Potential use of pheromones to protect flycatcher breeding sites from the beetles could be investigated. The RIP participants recognize the role of habitat restoration work in ameliorating the loss of nesting habitat.

7.4 Population Management (minnow)

The RIP will continue to support the improvement of the MRG population through careful evaluation of past and current species management projects and establishment of a RIP species management program that is focused on recovery goals. The LTP includes continuation of the propagation, augmentation, and genetics programs while the Action Plan includes an intensive 2-year evaluation of these critical recovery actions. While the ultimate goal, in order to delist the silvery minnow, is to have three self-sustaining populations that thrive without supplemental augmentation, the RIP plans to continue to support captive propagation and augmentation of silvery minnow. In order to downlist and delist the silvery minnow, successful reintroductions are also needed. The LTP includes working with the Service to support reintroduction of populations outside the MRG, including at Big Bend, and reintroduction of populations in the future in at least one additional reach in historically occupied habitat.

The Service's [Rio Grande Silvery Minnow Genetics Management and Propagation Plan](#) will be used as guidance for the RIP activities. The plan is based on two key elements: 1) the collection of eggs from the MRG to meet the majority of targeted stocking numbers, and 2) maintaining fish from the annual wild egg collection as broodstock for captive propagation and as refuge populations in the event catastrophic changes occur in the river.

The Collaborative Program has funded the construction, expansion, and/or operation and maintenance of three minnow propagation facilities: the City of Albuquerque's BioPark Refugium, the NMISC's Los Lunas Silvery Minnow Refugium, and the Southwestern Native Aquatic Resources and Recovery Center (SNARRC). Together, these facilities are expected to provide minnow for augmentation into the MRG and reintroduction efforts by the Service within the minnow's historic range in the Rio Grande Basin.

7.5 Water Quality Management (minnow)

The potential impacts to riverine water quality in the MRG from natural and manmade causes have been studied by the Collaborative Program since 2003. These studies included the evaluation of whether there are water quality parameters, such as water temperature and dissolved oxygen, that may affect reproduction and survival of silvery minnow.

Based on studies to date, the potential major inputs to the river system are from the upstream watershed, MRG tributary streams, stormwater discharge outfalls, municipal wastewater discharges, and groundwater and irrigation return flows. As part of the LTP and Action Plan, the RIP will focus on riverine water quality monitoring recognizing that upstream watershed actions affect the quality of water reaching the river. The RIP expects to participate in the evaluation of water sources and quality of water that may be used in refugia for the minnow in times of drought. Relevant stormwater quality management considerations for the MRG are being addressed through a separate ESA consultation with the U.S. Environmental Protection Agency (USEPA). The RIP will communicate with the USEPA on RIP activities related to regional

water quality. Other water quality elements will be evaluated on an as-needed basis to address specific projects.

7.6 Research, Monitoring, and Adaptive Management

The Program pursues scientifically-based solutions to address the needs of the listed species and the ecosystems upon which they depend. Monitoring and adaptive management are used to ensure that RIP activities achieve the desired objectives.

The RIP intends to use adaptive management as a structured and systematic approach for designing, implementing, monitoring and evaluating management actions to maximize learning about critical scientific questions and uncertainties that affect management decisions regarding the use of Program resources to achieve the goals of the RIP. In October 2010, the Collaborative Program began taking steps toward formalizing an AM process. An AM guidance document (Adaptive Management Plan Version 1 (AMP-1)) was produced to assist in implementation of AM throughout the recovery implementation process.

The desire is to maximize learning and reduce risks to the endangered species by deliberately designing and applying management actions within available resources. The final AM plan will be utilized to assess, design, implement, monitor, evaluate and adjust those Program-prioritized activities that are most likely to answer the remaining critical questions necessary to more quickly and cost-effectively improve the status of the species and move towards recovery. Hypothesis-testing and learning over time pursuant to these adaptive management procedures and as contemplated by the 2014 BOs will allow for adjustment of RIP management activities in the LTP, the RIP Action Plan, the Annual Work Plan, and other components of the RIP, as appropriate over time.

The Program is in the process of integrating the results of a 2-year pilot habitat restoration effectiveness monitoring project with other Program-sponsored studies, future habitat restoration priorities and the Program's adaptive management program. This effort will 1) assist in assessing the success and effectiveness of the Program's habitat restoration efforts, 2) provide input to the Program's adaptive management program; and 3) serve as a pilot for developing a longer-term Program Monitoring Plan that will cover all reaches of the Middle Rio Grande within the Program boundaries.

7.7 Policies and Laws

Policies and laws provide direction to fully implement sections 4(f)(2), 7(a)(1), and 7(a)(2) of the ESA; meet the provisions of current BOs, as applicable; ensure best management practices; and meet the intent of the RIP Cooperative Agreement. The intent of these activities is to ensure that Program efforts and decisions are carried out in accordance with guiding documents, are based upon the best available scientific information, and maximize RIP participants' efforts to contribute to species recovery. This includes the implementation of appropriate planning

documents; monitoring implementation, consistency and effectiveness of Program efforts; the use of a peer review process when appropriate to evaluate Program activities; and reviewing existing laws and regulations that impact endangered species within the Program area. New authorities and policies may be implemented to further enable agencies' capacities to pursue certain recovery actions. Specific RIP legislation may be sought to secure RIP continuity and funding.

Existing authorizing legislation for the Federal action agencies, Reclamation and the USACE is summarized below:

- The Omnibus Appropriations Act of 2009 (Public Law 111-8) authorized the Secretary of the Interior (acting through the Commissioner of Reclamation), in collaboration with the EC, to enter into any grants, contracts, cooperative agreements, interagency agreements, or other agreements that the Secretary determines to be necessary to comply with the 2003 BO or any related subsequent BO or in furtherance of the objectives set forth in the Collaborative Program's LTP. This recognized a 25% non-federal cost share in cash or in-kind contributions; specified that the acquisition of water and any administrative costs shall be at full federal expense; and provided that not more than 15% of amounts appropriated shall be made available for administrative expenses.
- The Omnibus Appropriations Act of 2009 (Public Law 111-8) authorized the Secretary of the Army to carry out and fund planning studies, watershed surveys and assessments, or technical studies at 100 percent Federal expense to accomplish the purposes of the 2003 BO or any related subsequent BO, and the Collaborative Program's LTP. In carrying out a study, survey, or assessment under this subsection, the Secretary of Army shall consult with Federal, State, tribal and local governmental entities, as well as entities participating in the Collaborative Program and may also provide planning and administrative assistance, which shall not be subject to cost sharing requirements with non-Federal interests.

7.8 Public Information and Outreach

These activities are intended to educate and inform the general public, stakeholders, and state and Federal lawmakers about RIP activities and accomplishments. There is a need for information and outreach efforts to increase awareness by the general public regarding the potential role of the Program in MRG water management and endangered species recovery issues. As the human population in the MRG continues to grow, it is important that they are informed of the ongoing water shortage and the impact on endangered species. Public information and outreach (PIO) priorities include organizing events such as the Program Open House to expose the public to the Program and highlight some of its accomplishments. Other activities include issuing news releases on behalf of the Program and creating educational materials such as traveling displays that can be used at events such as the New Mexico State Fair and other outdoor and environmental events to showcase the Program. The Program also

maintains a website on past, ongoing, and future events to inform the public of the Program's activities in the Middle Rio Grande.

7.9 Program Management

The Program requires management and administrative support to accomplish its goals and objectives. The specifics regarding the organizational structure, management, and administrative support for the RIP are addressed in the Program Document, Section IV and in the By-laws.

7.10 Biological Opinion Activities Not in Recovery Plan

This category will capture those activities not directly identified as recovery plan actions but which may be included in BOs or undertakings by participating entities.

Endorsed by EC July 18, 2013

Table 7.1 Lead Agency Acronyms

The following acronyms are used in Appendices G and H to identify the lead agencies responsible for implementing LTP activities:

| Acronym | Agency |
|----------------|---|
| ABCWUA | Albuquerque-Bernalillo County Water Utility Authority |
| AGO | New Mexico Office of the Attorney General |
| APA | Assessment Payers Association of MRGCD |
| BIA | Bureau of Indian Affairs |
| CoA/COA | City of Albuquerque |
| FWS | U.S. Fish and Wildlife Service |
| ISC | New Mexico Interstate Stream Commission |
| Isleta | Pueblo of Isleta |
| MRGCD | Middle Rio Grande Conservancy District |
| NMDA | New Mexico Department of Agriculture |
| NMDGF | New Mexico Department of Game and Fish |
| Ohkay Owingeh | Pueblo of Ohkay Owingeh |
| Reclamation | Bureau of Reclamation |
| San Felipe | Pueblo of San Felipe |
| Sandia | Pueblo of Sandia |
| Santa Ana | Pueblo of Santa Ana |
| Santa Clara | Pueblo of Santa Clara |
| Santo Domingo | Santo Domingo Tribe |
| UNM | University of New Mexico |
| USACE | U.S. Army Corps of Engineers |
| USEPA | U.S. Environmental Protection Agency |
| USGS | U.S. Geological Survey |

Table 7.2 Long Term Plan Categories

| Category | Definition |
|------------------------------|---|
| Planning | “Planning” involves hydrologic modeling, data collection, or other planning activities that support decisions that may lead to an on-the-ground activity such as flow management, habitat development, propagation, etc. |
| Management | “Management” means acquisition of water and/or manipulation of flows and reservoirs to meet activity objectives on the ground. |
| Pre-Construction | “Pre-construction” activities include planning, design, National Environmental Policy Act (NEPA) compliance, coordination, and other activities needed to bring a project to the construction stage. |
| Construction | “Construction” means construction of a project. |
| O & M | “O & M” means “operation and maintenance” of a constructed project. It may be a habitat project, propagation facility, fish passage, etc. |
| Post-Construction Monitoring | “Post-construction monitoring” means monitoring a completed construction project to ensure it is meeting its goals and objectives. |
| Augmentation | “Augmentation” means the actual stocking of fish into the river. |
| Research | “Research” means applying the scientific method to identify the basic needs of the listed species, including habitat, genetics, health, etc. |
| Monitoring | “Monitoring” means collecting data to determine the status of species and/or habitat to support decision making or adaptive management. |
| Public Outreach | “Public outreach” means developing and providing information materials to the public, state legislators, Congress, and Federal, state, and local agencies regarding the Collaborative Program. |
| Staffing | “Staffing” means RIP signatories are providing staff to assist in implementing the Program. Implementing the Program includes providing management, technical, and/or administrative support to participate in RIP committees and work groups and implement RIP activities. |
| Adaptive Management | Adaptive Management is the process of evaluating previous decisions, ongoing operations or activities, based on monitoring or post-construction monitoring, analysis, and experience, and modifying processes, operations, or activities to better achieve Program objectives, as needed. |
| Policy | Policy refers to identification, implementation, and/or enforcement of laws, policies, and regulations to enhance and/or protect species or habitat. |