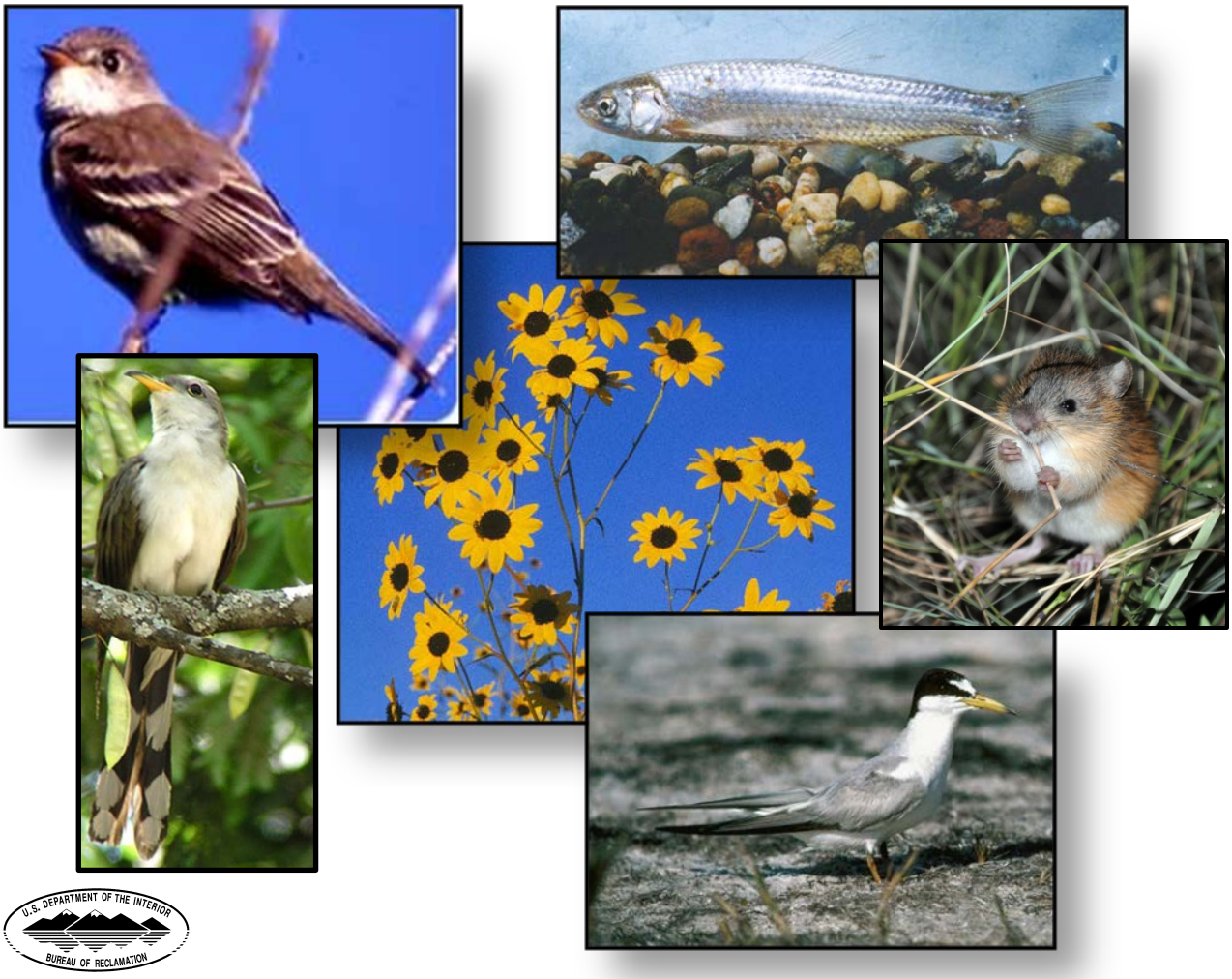
RECLAMATION

Managing Water in the West

Joint Biological Assessment

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

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 2015

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.

The Bureau of Indian Affairs' mission is to enhance the quality of life, to promote economic opportunity, and to carry out the responsibility to protect and improve the trust assets of American Indians, Indian tribes and Alaska Natives.

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Executive Summary

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**
Yellow-billed Cuckoo	**New Mexico Meadow Jumping Mouse**
Pecos Sunflower	**Interior Least Tern**

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Executive Summary

This biological assessment (BA) is being submitted to the U.S. Fish and Wildlife Service (Service) in compliance with section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended. This BA includes the Bureau of Reclamation (Reclamation), Bureau of Indian Affairs (BIA), the Middle Rio Grande Conservancy District (MRGCD), and the State of New Mexico (State) water management actions taken in the Middle Rio Grande (MRG), as well as State actions in the Upper Rio Grande in New Mexico. The BA also includes Reclamation's River and Infrastructure Maintenance and Restoration Program, other Reclamation MRG Project maintenance actions, and the MRGCD's and State's proposed maintenance actions.

Reclamation is requesting informal consultation on its proposed operation of the San Juan-Chama Project (SJC Project). As described in this BA, these actions include only the release of SJC water from Heron Reservoir, the storage and release of SJC water from El Vado Reservoir, and MRGCD storage and release of SJC water in Abiquiu Reservoir. Due to the beneficial effects of these actions on listed species and critical habitat, and the absence of adverse effects, as SJC Project water is additional non-native water in the system, Reclamation could informally consult with the Service separately on the SJC Project actions. However, Reclamation is requesting informal consultation on SJC actions as part of the larger programmatic consultation, for efficiency and to provide a more holistic view of management actions in the MRG basin.

The BA analyzes effects on listed species in the action area: the Rio Grande silvery minnow (*Hybognathus amarus*)(silvery minnow), the Southwestern willow flycatcher (*Empidonax traillii extimus*) (flycatcher), the yellow-billed cuckoo (*Coccyzus americanus*) (cuckoo), the New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) (jumping mouse), the Pecos sunflower (*Helianthus paradoxus*), and the interior least tern (*Sternula antillarum athalassos*) (tern).

The BA provides descriptions of specific Offsetting and Conservation Measures, as defined below, proposed by Reclamation, BIA, the MRGCD, and the State, including establishment of a Recovery Implementation Program (RIP).

The information presented in this BA is divided into five parts. Parts I, II, and III contain amended and updated information added to previous BA submittals to the Service (July 31, 2012, January 15, 2013, and August 8, 2013). This BA now includes information pertaining to two recently listed species—the cuckoo and the jumping mouse—and their proposed critical habitats. The five parts of this BA are as follows:

- Part I: Introduction, Action Area, and foundational information that applies for all Proposed Actions, including Species Description, the Environmental Baseline, and Cumulative Effects.

- Part II: Reclamation's, BIA's, MRGCD's, and the State's specifically described water management Proposed Actions and their anticipated effects on listed species and designated/proposed critical habitat.

- Part III: Reclamation's River and Infrastructure Maintenance and Restoration Program performed in cooperation with the State, the State's habitat restoration activities, Reclamation's maintenance activities on riverside drains, and MRGCD maintenance actions on diversion structures and riverside delivery systems. A programmatic description of these Proposed Actions and their anticipated effects on listed species and designated/proposed critical habitat is included, along with best management practices (BMPs) used for such activities.

- Part IV: Reclamation's, BIA's, MRGCD's, and the State's proposed measures to offset adverse effects of the Proposed Actions and provide conservation benefits for listed species and critical habitat. These include measures to minimize and/or avoid anticipated adverse effects of the Proposed Actions on the silvery minnow (defined in this BA as Offsetting Measures). Also included are measures that address multiple species and river system considerations beyond those needed to minimize or avoid anticipated adverse effects of the Proposed Actions (defined in this BA as Conservation Measures).

- Part V: The overall determination of effects to ESA-listed species, as required by section 7, and various procedural considerations related to this consultation, including a framework for streamlined compliance, clarification on the proposed timeframe for the BA/Biological Opinion (BO), and the role of the Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program) RIP.

The approach to this consultation differs in several ways from the approach of the 2003 consultation, which resulted in the March 17, 2003, Biological Opinion (2003 BO). In the 2003 consultation, Reclamation and the U.S. Army Corps of Engineers (Corps) prepared a joint BA, which used a total river depletions-based analysis that looked only at the amount of water reaching the species and critical habitat. It did not examine each action taken, the effects of discrete actions, or the extent of discretion exercised by each entity. For this BA, Reclamation set out more specifically to identify, describe, and assess each of its actions, the actions of the BIA, the actions of MRGCD, and the actions of the State.

The entire Action Area (Part I) for this consultation is composed of the action areas for Reclamation's water operations and river maintenance activities, BIA's activities, the State's activities, and the MRGCD's activities. The composite boundaries for this overarching Action Area are from Heron Reservoir on Willow Creek, the Rio Chama from the confluence with Willow Creek downstream to the Rio Grande, the Rio Grande mainstem from the New Mexico state line with Colorado downstream to the full reservoir pool of Elephant Butte (EB) Reservoir (considered to be at river mile [RM] 62), and for the San Marcial Delta Water Conveyance Channel (Delta Channel), which begins at RM 57.8 and extends downstream to the active EB Reservoir level. The lateral extent of the action area generally is defined by the riverside drains and associated levees located to the east and west of the river. For the Delta Channel, the action area also includes access roads in the area from RM 62 downstream. In situations where levees do not exist, the lateral extents are confined by the historical floodplain, as delineated by geological or anthropogenic constraints. This Action Area also includes the entire length of the Low Flow Conveyance Channel (LFCC) from RM 116.2 to 60.6, as well as the footprint (facility structure/drain, operation and maintenance [O&M] roads, spoil levees, and immediately adjacent

property) of the MRG Project drains and irrigation and flood control structures and facilities between Cochiti Dam and the Bosque del Apache National Wildlife Refuge (BDA).

This BA evaluates the effects of the following water management actions for Reclamation, BIA, the MRGCD, and the State (Part II):

1. Reclamation proposes the following water management actions:
    a. Release of non-native SJC Project water from Heron Reservoir to deliver water to downstream users.
    b. Operate El Vado Dam and Reservoir to store and release water, including response to requests by the MRGCD and BIA.
2. BIA proposes the following water management actions:
    a. Request storage and releases of water from El Vado to meet the Pueblos' irrigation needs.
3. MRGCD proposes the following water management actions:
    a. Operate the MRG Project Diversion Dams to deliver water to MRGCD lands to meet agricultural demand of lands with appurtenant water rights, including the lands of the Six MRG Pueblos.
    b. Operate irrigation drains and wasteways to return water to the river.
    c. Request storage and release of water at El Vado to meet the irrigation needs of constituents.
4. The State proposes the following water management actions:
    a. Continue its Rio Grande Compact related activities to administer relinquishment of New Mexico credit water and allocation of relinquished Compact credits.
    b. Continue to administer the surface water and groundwater resources to maintain hydrologic system balance by executing its statutory duties with respect to transfers of valid existing surface water rights and compliance with valid existing state water declarations, permit, licenses, and court adjudication.
    c. Continue to issue permits for small domestic, livestock, and temporary uses, as required by NMSA 1978 Sections 72-12-1.1 through 72-12-1.3, in accordance with the New Mexico Office of the State Engineer (NMOSE) 2006 Rules and Regulations Governing the Use of Public Underground Waters for Household and Other Domestic Use.

This BA evaluates the effects of the following river and infrastructure maintenance and restoration actions for Reclamation, the MRGCD and the State (Part III). For the purposes of this BA, the term "river maintenance" refers to river and infrastructure maintenance and restoration actions.

1. Reclamation's programmatic strategy for River and Infrastructure Maintenance and Restoration activities that will:

a. Provide effective transport of water and sediment to Elephant Butte Reservoir.
b. Conserve surface water within the MRG basin.
c. Protect riverside structures and facilities.
d. Reduce and/or eliminate aggradation in the MRG.
e. Reduce the rate of channel degradation from Cochiti Dam south to Socorro.
f. Restore natural river processes.
g. Provide habitat improvement for the ESA-listed species within the MRG Project Area.

2. Reclamation's maintenance activities for the LFCC and former State drains in coordination with the State.
3. Reclamation's maintenance of the Delta Channel, including the State cooperative agreement.
4. Reclamation's river maintenance support activities, including access roads, dust abatement, stockpiles and storage yards, borrow and quarry areas, and data collection activities.
5. MRGCD's continued maintenance activities for their diversion dams and associated conveyance channels and facilities.
6. The State's maintenance actions that include its cooperative agreement for river maintenance with Reclamation and also habitat restoration activities in support of the Collaborative Program and the RIP.

Proposed measures to offset adverse effects and provide conservation benefits for listed species and critical habitat are presented in Part IV of this BA. In support of these Offsetting and Conservation Measures, Reclamation is proposing a new approach for river operations coordination using Adaptive Management (AM) principles that address species and water management needs. This new approach—River Integrated Operations (RIO)—would take into account the four focus areas identified by the Service as necessary to improve the status of the silvery minnow: (1) a draft Hydrologic Objective (HO), (2) habitat restoration, (3) river reconnectivity, and (4) conservation storage. The use of a defined AM process is supported by AM policy within the Department of the Interior. Development of a defined AM process for the MRG, integrated with ongoing AM efforts in the basin, will help to reduce uncertainties over time and improve our collective understanding of how to achieve sustainable management of the MRG.

The specific Offsetting Measures developed to minimize and/or avoid anticipated adverse effects of the Proposed Actions, as offered by Reclamation, BIA, the MRGCD, and the State, include the following:

1. Reclamation's Offsetting Measures:

   Reclamation proposes to utilize several tools, within current authorities, to meet RIO needs and goals using Adaptive Management. Reclamation will continue leasing water, as part of

its Supplemental Water Program, and utilize SJC Project waivers of mandatory release dates from Heron Reservoir to maximize the use of such tools for the RIO. In addition, Reclamation proposes to coordinate with the BA partners to work within existing authorizations to establish a conservation pool or pools at upstream reservoirs. Finally, Reclamation proposes to work with the BA partners to modify operations and adjust timing of storage at El Vado Reservoir, within current authorizations, for RIO needs.

2. BIA's Offsetting Measures:

   BIA proposes to work with the Pueblos in developing species habitat, facilitate exchange actions for management of prior and paramount stored water, and will assess conditions of irrigation facilities on Pueblo lands to identify ways to increase efficiency of the irrigation infrastructure.

3. MRGCD's Offsetting Measures:

   MRGCD's Offsetting Measures are proposed through participation in RIO using Adaptive Management during both high-flow and low-flow periods, including coordination to develop conservation pools in upstream reservoirs, modified reservoir operations, adjusted timing of storage, exchanges, construction of gaging stations and controls, use of a decision-support system, providing for a controlled flow recession, and management of return flows, among other measures.

4. The State's Offsetting Measures:

   The State's Offsetting Measures propose providing relinquishment credit for storage and later release at low flow rates, providing senior consumptive use rights from the Strategic Water Reserve for specific habitat projects, maintaining existing overbank habitat constructed by the State, and operating the Los Lunas Silvery Minnow Refugium to produce adult silvery minnow for stocking in the Rio Grande.

The specific Conservation Measures developed to address multiple species and river system considerations beyond those needed to minimize or avoid anticipated adverse effects of the Proposed Actions, and which are offered by Reclamation, BIA, the MRGCD, and the State include the following categories:

1. RIO using Adaptive Management: Tools to meet RIO needs and goals, including those which are currently outside of existing authorizations.

2. River Connectivity: Measures to improve river connectivity at diversion dams.

3. Habitat Improvements: Measures to improve and create habitat for the needs of listed species.

4. RIP Establishment: Measures to transition the Collaborative Program into a RIP.

Starting in 2009, Reclamation, the MRGCD, the State, and other Collaborative Program participants began taking steps toward development of a RIP, which would include an Adaptive Management-based approach designed to address scientific and management uncertainty and make progress toward recovery of endangered species. On July 18, 2013, the Collaborative

Program's Executive Committee (EC) endorsed the foundational documents for the RIP, and updates to the Program Document have been ongoing during 2015. Formal commitment to participate in the RIP will occur once an agency executes the RIP Cooperative Agreement, which is expected to occur after the Service issues the final BO for this consultation.

Lastly, this BA provides relevant information for the following procedural considerations for this consultation (Part V):

1. A framework for streamlined ESA compliance for future consultations, including:
    a. Specific water operations actions covered under this programmatic BA/BO.
    b. Specific river maintenance and restoration actions covered under this programmatic BA/BO.
    c. compliance for other water-related actions through separate consultations.
2. A proposal for a 15-year timeframe for this programmatic BA/BO.
3. A proposal for an option to extend this programmatic BA/BO beyond the initial 15-year term.
4. The role of the RIP as a Conservation Measure to address multiple species and river system considerations and to facilitate ESA compliance.

The status of the silvery minnow and flycatcher has been variable in the last decade since the initiation of the 2003 BO. Silvery minnow abundance was at its lowest levels in 2003 and 2012–2014, and highest in 2005. The abundance of silvery minnow has decreased from 2005 levels in recent years, corresponding with a series of low runoff and extreme drought years. Flycatcher abundance has increased since the initiation of the 2003 BO due to the dense vegetation that has become established from several years of overbank inundation. Surveys of the cuckoo from the south boundary of Isleta Pueblo to Elephant Butte Reservoir indicate that this area has one of the largest concentrations in New Mexico; however, most of these cuckoos are south of the Action Area. It is believed that this population has increased slightly since formal surveys began in 2006. For the jumping mouse, its current distribution within the MRG is uncertain, but the largest known population in New Mexico occurs at the BDA. The loss of suitable habitat is the most important stressor to jumping mouse population viability and is attributed to its decline elsewhere in its historical range. The Pecos sunflower is actively managed on the La Joya State Wildlife Area (SWA) and was also reintroduced in 2008 on private property in Socorro County, through a cooperative effort. This population has expanded its range in the short time since establishment, but no population estimates are available. Overall, the sunflower population appears to be stable to increasing within the MRG. The population variation for silvery minnow, flycatcher, and cuckoo appears to be driven mainly by high-flow events, while the jumping mouse and the main portion of the Pecos sunflower population on La Joya SWA are influenced by management activities that provide water through the irrigation system.

The overall effect of water management-related activities is a modification of the volume, timing, and distribution of flows in the Rio Grande through the Action Area. This effect may, at times, result in a decreased or increased flow in particular subreaches compared to river flows that would occur in the absence of the Proposed Actions. Maintenance and restoration activities

may have short-term direct or indirect negative effects to species and their habitat, although the techniques used help to minimize short-term adverse effects and provide long-term benefits to listed species and critical habitat. Long-term (indirect) effects are intended to have an overall net benefit across projects.

In summary, components of the Proposed Actions are likely to adversely affect silvery minnow and its critical habitat, flycatcher and its critical habitat, and the cuckoo and its proposed critical habitat. Measures have been developed to attempt to minimize or otherwise offset these adverse effects. The composite Proposed Actions are not likely to adversely affect the jumping mouse or its proposed critical habitat or the Pecos sunflower, and will have no effect on the tern.