Middle Rio Grande Endangered Species Collaborative Program

ANNUAL REPORT

2021

Program Website: https://webapps.usgs.gov/MRGESCP/

ACRONYMS & ABBREVIATONS

ABCWUA	Albuquerque Bernalillo County Water Utility Authority
Audubon	Audubon Southwest
CEM	Conceptual Ecological Model
CoA	City of Albuquerque
Collaborative Program	Middle Rio Grande Endangered Species Collaborative Program
EC	Executive Committee
ES	USFWS Ecological Services
EWLP	Environmental Water Leasing Program
HR	Habitat Restoration
LTP	Long-Term Plan
MRG	Middle Rio Grande
MRGCD	Middle Rio Grande Conservancy District
NMDGF	New Mexico Department of Game and Fish
NMISC	New Mexico Interstate Stream Commission
PoSA	Pueblo of Santa Ana
RGSM	Rio Grande Silvery Minnow
S&T Ad Hoc	Science & Technical Ad Hoc Group
SAMC	Science and Adaptive Management Committee
SAMIS	Science and Adaptive Management Information System
Science & AM Plan	Science & Adaptive Management Plan
SWFL	Southwestern Willow Flycatcher
SWR	Strategic Water Reserve
UNM	University of New Mexico
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife
WMA	Wildlife Management Area
YBCU	Yellow-Billed Cuckoo

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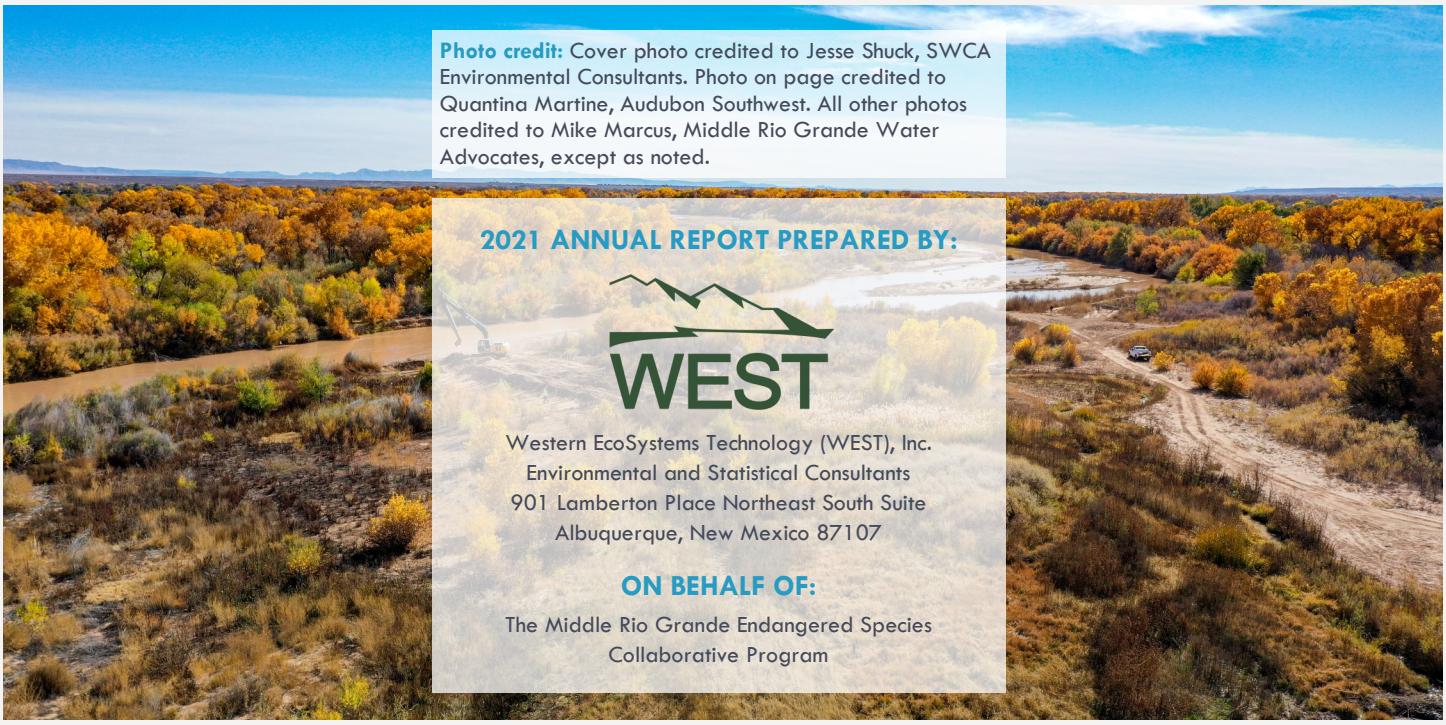

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2021 ANNUAL REPORT PREPARED BY:

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Environmental and Statistical Consultants
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Albuquerque, New Mexico 87107

ON BEHALF OF:

The Middle Rio Grande Endangered Species Collaborative Program

GUIDING PRINCIPLES

Mission

The Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program) provides a collaborative forum to support scientific analysis and implementation of adaptive management to the benefit and recovery of the listed species pursuant to the Endangered Species Act within the Program Area, and to protect existing and future water uses while complying with applicable state, federal, and tribal laws, rules, and regulations.

Species of Interest

The Collaborative Program supports the recovery of five listed species inhabiting the Middle Rio Grande (MRG): the endangered Rio Grande silvery minnow (RGSM; *Hybognathus am*arus), the endangered southwestern willow flycatcher (SWFL; *Empidonax traillii extimus*), the threatened yellow-billed flycatcher (YBCU; *Coccyzus americanus*), the endangered New Mexico meadow jumping mouse (PESU; *Zapus hudsonius luteus*), and the threatened Pecos sunflower (NMMJM; *Helianthus paradoxus*).

Goals

- Establish and maintain a self-sustaining population of endangered RGSM distributed throughout the MRG.
- Maintain and protect the MRG recovery unit goals for endangered SWFL.
- Maintain and protect suitable threatened YBCU habitat in the MRG.
- Establish and maintain a self-sustaining endangered NMMJM population in the MRG.
- Maintain and protect the threatened PESU in the MRG.
- Avoid the future listing or up-listing of species in the Collaborative Program area.
- Manage available water to meet the needs of endangered species and their habitat.

FOREWORD FROM THE CO-CHAIRS

We are pleased to present the Collaborative Program's 2021 Annual Report, which covers our first year formally operating within a science and adaptive management framework. 2021 was a year of immense change for the Collaborative Program, which resulted in many accomplishments and a palpable sense of momentum. The changes in the Collaborative Program highlight the immense potential it has for the future.

"Science is a way of thinking much more than it is a body of knowledge."
– Carl Sagan

In 2021, the Collaborative Program embraced science in a more formal way, focusing on evidence-based recommendations. This included developing and standardizing review processes and tools used to assess our understanding of the MRG's listed species, as well as committing to continually refining that understanding. The newly formed Science and Adaptive Management Committee (SAMC) helped guide the Collaborative Program's science activities, ensuring that processes were followed and results of activities were evaluated collectively. By analyzing and applying scientific findings within the broader management context, we are building a cumulative knowledge base with which to formulate better recommendations.

One thing we learned in 2021 is that a science and adaptive management program requires navigation of both change and uncertainty. To manage a dynamic system effectively, we must regularly acknowledge and test our assumptions, and critically evaluate what we learn from scientific research. Keeping an open mind to novel ideas that might break with conventional thinking is vital to finding solutions to complex problems. Diverse perspectives are key and, together, we are much more likely to identify and ask the essential questions needed to focus our conservation efforts.

This annual report is a celebration of the Collaborative Program's accomplishments in 2021. The sixteen signatories brought their unique strengths and resources to the table, leveraged partnerships to create stronger projects, and collectively worked towards shared goals. We truly are an example of the whole being greater than the sum of its parts, as every signatory's work collectively improves our scientific understanding and informs future activities. We hope readers of this annual report will get a sense of the impact of the Collaborative Program's work in 2021 and its potential in the future.

Katrina Grantz

FEDERAL CO-CHAIR OF THE EXECUTIVE COMMITTEE

U.S. Bureau of Reclamation

Mark Kelly

NON-FEDERAL CO-CHAIR OF THE EXECUTIVE COMMITTEE

Albuquerque-Bernalillo County Water Utility Authority

COMMITTEE REPRESENTATIVES

Executive Committee (EC)

CO-CHAIRS

Mark Kelly	Non-Federal Co-Chair, EC Representative for Albuquerque Bernalillo County Water Utility Authority (ABCWUA)
Wayne Pullan [Jan-Apr 2021]	Federal Co-Chair
Katrina Grantz [Apr-Dec 2021]	Federal Co-Chair

REPRESENTATIVES

Paul Tashjian	Audubon Southwest (Audubon)
Kim Eichhorst	Bosque Ecosystem Monitoring Program
Rick Carpenter	Buckman Direct Diversion
Colleen Langan-McRoberts	City of Albuquerque (CoA)
Dave Gensler [Jan–Jun 2021]	Middle Rio Grande Conservancy District (MRGCD)
Anne Marken [Jun–Dec 2021]	MRGCD
William Grantham	New Mexico Office of the Attorney General
Matthew Wunder	New Mexico Department of Game and Fish (NMDGF)
Page Pegram	New Mexico Interstate Stream Commission (NMISC)
Blane Sanchez	Pueblo of Isleta
Michael Scialdone	Pueblo of Sandia
Alan Hatch	Pueblo of Santa Ana (PoSA)
Thomas Turner	University of New Mexico (UNM)
LTC Patrick Stevens	U.S. Army Corps of Engineers (USACE)
Jennifer Faler	U.S. Bureau of Reclamation (Reclamation)
Shawn Sartorius	U.S. Fish and Wildlife Service (USFWS)

Science and Adaptive Management Committee (SAMC)

Thomas Archdeacon	Aquatic Ecology Expert
Meaghan Conway	Ecosystem Function Expert
Megan Friggens	Climate Science Expert
Ryan Gronewold	Hydrology Expert
Mo Hobbs	Aquatic Ecology Expert
S. Dave Moore	Terrestrial Ecology Expert
Ari Posner	Geomorphology Expert
Ara Winter	Statistics/Modeling Expert
Alan Hatch	EC *Ex Officio* Member

Fiscal Planning Committee (FPC)

CO-CHAIRS

Grace Haggerty	Non-Federal Co-Chair
Debra Hill	Federal Co-Chair

REPRESENTATIVES

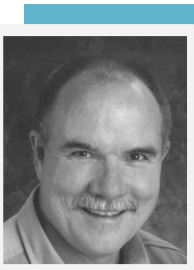
Representatives are selected by the EC to address meeting topics.

THE RICK BILLINGS MEMORIAL AWARD

Rick Billings was the former EC Non-Federal Co-Chair, an EC member, and a long-time supporter of the Collaborative Program. In his memory, Reclamation's Albuquerque Area Office sponsors an annual award recognizing an individual's contributions to the success of the Collaborative Program.

The first Rick Billings Memorial Award was granted in December 2020 to John Stomp, the former Chief Operating Officer for the ABCWUA. John served as the EC Non-Federal Co-Chair from June 2019 to December 2020, when he retired. John was instrumental in supporting the Collaborative Program in developing a Science & Adaptive Management Plan (Science & AM Plan). He helped the EC navigate difficult decisions and hurdles, and adopt a forward-looking, solution-focused perspective.

The 2021 Rick Billings Memorial Award recipient is Wayne Pullan. Wayne is the Regional Director of Reclamation's Upper Colorado Basin Region and former EC Federal Co-Chair from April 2020 to May 2021. He was a decisive leader during a major period of transition for the Collaborative Program, and was often praised for his ability to provide clarity and guidance during EC meetings. Without a doubt, Wayne was instrumental in transforming the Collaborative Program into the program it is today.



Rick Billings

FORMER MEMBER AND SUPPORTER OF THE COLLABORATIVE PROGRAM, AWARD NAMESAKE

John Stomp

FORMER NON-FEDERAL CO-CHAIR (2019-2020), WINNER OF THE 2020 RICK BILLINGS MEMORIAL AWARD

Wayne Pullan

FORMER FEDERAL CO-CHAIR (2020-2021), WINNER OF THE 2021 RICK BILLINGS MEMORIAL AWARD

2021 YEAR IN REVIEW

Collaborative Program

WHAT IS THE COLLABORATIVE PROGRAM?

The Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program) is a partnership of 16 signatory entities (3 Federal agencies, 3 State agencies, 2 local agencies, 2 non-governmental organizations, 3 Pueblos, 2 municipal water utilities, and 1 university) that supports actions in the Middle Rio Grande aimed at protecting and recovering five federally listed species, while preserving existing and future water uses.

PARTICIPANTS

In 2021, over 140 participants (both signatory representatives and members of the public) contributed to Collaborative Program efforts, including meetings, seminars, workshops, and the Science Symposium.

SCIENCE OUTREACH BY THE NUMBERS

- **1** Science Symposium
- **2** Workshops
- **2** Collaborative Seminars
- **6** Newsletters
- **17** Publications Shared
- **38** Signatory Announcements

SPECIES BY THE NUMBERS

Rio Grade Silvery Minnow

6 Science Objectives & **20** Science Strategies

31 2021 Projects • **3** S&T Ad Hocs* • ☑ CEM*

Southwestern Willow Flycatcher

3 Science Objectives & **15** Science Strategies

14 2021 Projects • **1** S&T Ad Hoc • ☑ CEM

Yellow-Billed Cuckoo

1 Science Objective & **4** Science Strategies

12 2021 Projects • **1** S&T Ad Hoc • ☑ CEM

NM* Meadow Jumping Mouse

1 Science Objective & **5** Science Strategies

5 2021 Projects • **0** S&T Ad Hocs • ☐ CEM

Pecos Sunflower

1 Science Objective & **3** Science Strategies

5 2021 Projects • **0** S&T Ad Hocs • ☐ CEM

*S&T = Science & Technical Ad Hoc Groups, CEM = conceptual ecological model, NM = New Mexico, SAMIS = Science and Adaptive Management Information System

MAJOR ACCOMPLISHMENTS

Oct 2020 Formed the Science and Adaptive Management Committee.

Dec 2020 Hosted the 2020 Science Symposium.

Dec 2020 Approved the Science & Adaptive Management Plan and Long-Term Plan (LTP).

Feb 2021 Hosted the Objectives Workshop to revise proposed Science Objectives.

Jul 2021 Approved the Science Objectives.

Jul 2021 Approved the revised By-Laws.

Jul 2021 Approved a proposal for compiling Signatory Contributions

Jul 2021 Approved findings and recommendations from the Rio Grande Silvery Minnow Population Monitoring Summary Report.

Aug 2021 Hosted the Habitat Restoration (HR) Workshop to discuss defining HR success.

Sep 2021 Developed the SAMIS* and Project Bank, along with two user applications.

Dec 2021 Approved the updated LTP with the Biennial Schedule.

Dec 2021 Approved the Annual Program Evaluation.

2021 YEAR IN REVIEW COLLABORATIVE PROGRAM

In 2021, the Collaborative Program fully transitioned to a science-focused program that informs adaptive management of listed species connected to a dynamic and highly utilized river system. 2021 was a productive year filled with activities that enhanced the impact and direction of the Collaborative Program both administratively and scientifically, setting the stage for progress in 2022.

CONTRIBUTING ACCOMPLISHMENTS IN 2020

Three accomplishments in late 2020 set the stage for the progress the Collaborative Program saw in 2021: formation of the **SAMC**, hosting a virtual **2020 Science Symposium**, and EC approval of both the **LTP** and **Science & AM Plan**.

SCIENCE ACCOMPLISHMENTS IN 2021

As a first step toward implementing the LTP and Science & AM Plan, the Collaborative Program convened an **Objectives Workshop** to revise a set of proposed **Science Objectives** that address the Collaborative Program's Goals. The Science Objectives were then reported, along with a summary of their role and application as part of the scientific guiding principles for the Collaborative Program, to the EC for comment, review, and approval. This accomplishment led the way for integration of the Science Objectives into the **Science and Adaptive Management Information System (SAMIS)**. The SAMIS is a relational tool developed in 2021 that draws linkages between ongoing or proposed activities and the scientific uncertainties, management questions, and strategic planning objectives they address. Two user applications were deployed as part of development of the SAMIS: the **SAMIS Data Viewer App**, which allows signatories to view and filter the Project Bank (i.e., the list of Collaborative Program activities linked to science and management initiatives), and the **SAMIS Data Entry App**, which is used to add or update information in the **Project Bank**. Scientists and managers of the MRG Valley can use the SAMIS to document and summarize their activities, link to scientific uncertainties and management questions, and inform planning decisions – all important steps for adaptive management. Use of the SAMIS applications and updates to the Project Bank will commence in 2022.

The formation of several **Science & Technical (S&T) Ad Hoc Groups** by the SAMC was an important achievement in 2021, as it allowed the Collaborative Program to convene technical experts to address its science priorities. The 2021 S&T Ad Hoc Groups included the RGSM Population Monitoring Summary Report Ad Hoc, which was responsible for reviewing and finalizing the deliverables from the Population Monitoring Work Group, the RGSM Integrated Population Model Ad Hoc, the SWFL and YBCU Conceptual Ecological Model (CEM) Refinement Ad Hoc, and the RGSM CEM/Genetics Ad Hoc.

The SAMC reviewed the **RGSM Population Monitoring Summary Report** and presented a memo to the EC with **findings and recommendations**, including steps to address remaining questions raised in the summary report, and broader next steps for the Collaborative Program to consider. The EC approved the memo, solidifying the Collaborative Program's first recommendations as a science program, and the first application of the S&T Ad Hoc Group process laid out in the Science & AM Plan.

In response to rising signatory needs in 2021, the SAMC hosted a **Habitat Restoration (HR) Workshop** featuring a facilitated discussion on how to define and effectively document HR "success," and how lessons learned from existing HR projects can inform future efforts. In concert with this workshop, the Collaborative Program also hosted a HR Coordination Meeting for managers implementing HR in the MRG to discuss planned projects, potential areas for coordination, and areas the Collaborative Program could provide guidance for design, implementation, and/or monitoring.

ADMINISTRATIVE ACCOMPLISHMENTS IN 2021

The Collaborative Program formalized its **transition to a science and adaptive management program** by approving **revised By-Laws**, which codified the adoption of a new program structure and operations to support the Science & AM Plan. Approval of the revised By-Laws was the culmination of an effort over several years to transition to a new operational and organizational structure. As part of this transition, the EC approved a **Biennial Schedule** outlining the timeline for Collaborative Program activities over a two-year time period – an important step for improving planning and communication in the Collaborative Program, and one that helps enable adaptive management in the MRG.

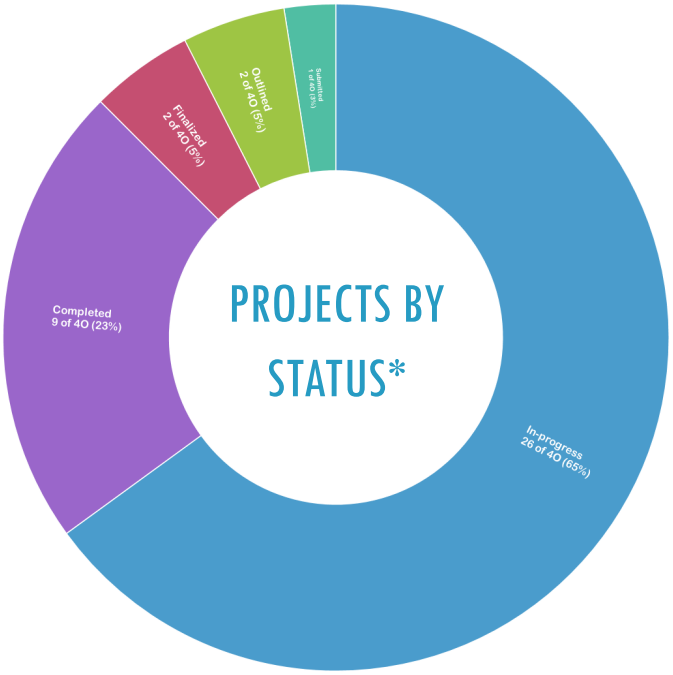
The **updated LTP** was approved by the EC in December 2021. The Collaborative Program also determined the LTP should be combined with the Science & AM Plan in 2022 to produce one comprehensive document. The LTP is informed by tracking **Signatory Contributions**, which the EC approved to account for the administrative and scientific contributions to the Collaborative Program. Signatory Contributions are tracked in the SAMIS and should be regularly updated with findings to inform Collaborative Program efforts. The following five categories are used to define Signatory Contributions: Program Management and Administration, Species Management and Recovery, Population Monitoring and Modeling, Habitat Assessments and Modeling, and Field and Laboratory Experiments.

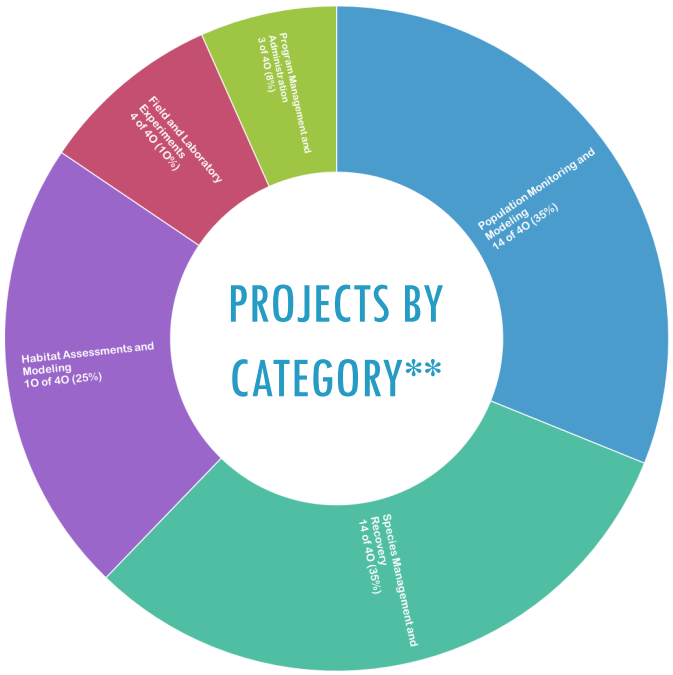
To inform adaptive management and maintain its relevance to its signatories, the Collaborative Program approved an **Annual Program Evaluation** allowing for the review and modification of Collaborative Program operations and functions, guiding principles, plans, tools, and processes. This annual effort will become a tool for guiding and increasing the impact of the Collaborative Program's activities.

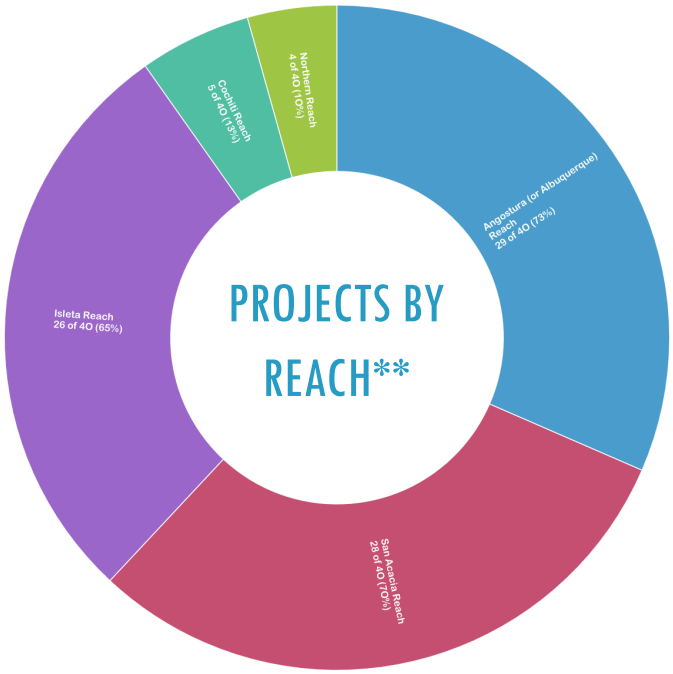

Photo credit: J. N. Stuart

SIGNATORY CONTRIBUTIONS

Signatories reported their 2021 projects relating to the Collaborative Program. These signatory contributions were entered into the SAMIS for integration into science and adaptive management processes. Forty projects were submitted, and are reported by status, category, species, and reach below:







*Percentages do not sum to 100 due to rounding.

**Percentages do not sum to 100 due to some projects pertaining to multiple options.

SIGNATORY HIGHLIGHTS

Collaborative Program signatories provided highlights summarizing the activities that best exemplified their work in 2021. The following highlights offer a short insight into their work:

ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY

The ABCWUA continued its commitment to endangered species in the MRG in 2021 through several projects including: RGSM egg entrainment monitoring, funding support for the CoA Aquatic Conservation Facility, and maintenance of the Paseo del Norte Restoration sites. The ABCWUA continued to collaborate with NMISC to conduct spring monitoring of spawning and nursery habitat used by RGSM in restored and natural flood plains. A synthesis report on this data that will provide information on conditions most beneficial to RGSM spawning is expected soon. The ABCWUA initiated the design of restoration work near the Southside Water Reclamation Plant outfall that would provide new floodplain habitat, improved riparian vegetation, improved water quality, and new community trails. This project will be a collaboration between the Office of Natural Resources Trustee, CoA Open Space, and MRGCD. The ABCWUA has also been coordinating with the NMISC and USACE on the restoration project.

– Kelsey Bicknell, Senior Water Resource Scientist

AUDUBON SOUTHWEST

During 2021, Audubon conducted the following activities within the MRG: 1) Managed the Isleta Reach Stewardship Association (WaterSMART funded), 2) coordinated the Non-Governmental Organizations Sectoral Committee for the Rio Grande Basin Study, 3) leased San Juan Chama water and brought water to Isleta Reach outfalls with MRGCD, 4) assisted the MRGCD with outfall restoration and monitoring, 5) board representation on Rio Grande Agricultural Land Trust, 6) held informational webinars on MRG water and habitat, 8) developed map-based web page for the Isleta Reach, 9) provided technical assistance to private landowners regarding Natural Resources Conservation Service programs, and 10) took part in New Mexico 50 Year Water Plan activities.

– *Paul Tashjian, Director of Freshwater Conservation*

MIDDLE RIO GRANDE CONSERVANCY DISTRICT

In 2021, MRGCD secured and delivered just under 1,616 acre-feet of water through the Conservation Program's Environmental Water Leasing Program (EWLP) to four strategic outfall habitat sites. These sites are located within the Isleta Reach, which can experience extensive drying during parts of the irrigation season. The EWLP is an important tool that supports the RGSM as part of the District's 2016 Biological Opinion obligation. Habitat sites included Alejandro Outfall, Los Chavez Outfall, 240 Wasteway, and Lower Peralta #2 Wasteway. Refugial habitat was sustained at these locations throughout the peak of the irrigation season when main channel drying occurred in the Isleta Reach, providing habitat for RGSM and other aquatic and riparian species until river conditions improved and allowed for re-occupation of main channel habitat. Deliveries typically consisted of 3-5 cubic feet per second and were successful at maintaining water temperatures below 30°C within habitat sites.

– *Anne Marken, Water Operations Division Manager*

NEW MEXICO DEPARTMENT OF GAME AND FISH

Bernardo Wildlife Management Area

The NMDGF masticated an additional 20 acres of invasive tamarisk and applied follow-up herbicide treatments to 530 acres of regrowth tamarisk. Recovery of native Alkali Sacaton and inland salt grass have exceeded expectations in these areas. Department staff and contractors planted 2,000 cottonwood poles, 500 Goodding's willows, and 200 coyote willows. Six hundred cages and two 5-acre exclosures were installed to protect plantings.

La Joya Wildlife Management Area

The NMDGF masticated 130 acres of invasive tamarisk and 100 acres of dead Russian olive and applied follow -up herbicide treatments to 270 acres of regrowth tamarisk. Recovery of native Alkali Sacaton and inland salt grass have begun to occur and is meeting expectations.

Socorro-Escondida Wildlife Management Area

The NMDGF cooperated with New Mexico State Forestry and Save Our Bosque Task Force to remove 89 acres of invasive tamarisk and Russian olive. The entire Wildlife Management Area [WMA] was fenced to exclude trespass livestock grazing, which has hindered recovery and long-term viability of riparian habitats on the WMA. Habitat restoration and fencing improvement are expected to help reduce nonpoint source pollution, benefitting the nearby Rio Grande.

– Matthew Wunder, Chief of Conservation Services

NEW MEXICO INTERSTATE STREAM COMMISSION

The NMISC has broad powers to investigate, protect, conserve, and develop New Mexico's waters. The NMISC manages the Strategic Water Reserve [SWR], which allows water rights in the SWR to be used flexibly for Endangered Species Act and Rio Grande Compact delivery purposes. It has been used primarily to offset habitat restoration project depletions in the MRG. The NMISC would like to obtain additional water rights for conservation purposes. Since 2016, NMISC research has focused on RGSM larval fish and its habitat during spring runoff. Understanding when and where fish spawn and detailing the early life stages of the RGSM are critical uncertainties that need to be better understood to manage flows in the MRG. The NMISC's Los Lunas Silvery Minnow Refugium raised over 30,000 fish for augmentation in 2021 and conducted research on captive spawning. We thank Dr. Douglas Tave for his years of service and best regards on a happy retirement, and welcome Pauletta Dodge to the team.

– Grace Haggerty, Hydrologist

PUEBLO OF SANTA ANA

The PoSA was able to maintain many operations despite the severe limitations the pandemic caused. The monitoring of the PoSA's fish and bird communities was completed with data collection emphasis on RGSM, SWFL, and YBCU. The PoSA uses these surveys to monitor the health of these communities and as a basis for National Environmental Policy Act compliance for restoration project work within the channel and surrounding bosque. These projects include ongoing partnerships with Reclamation for streambank stabilization and habitat modification and with Bureau of Indian Affairs for invasive species removal and native revegetation work. The PoSA also maintains a strong relationship with USFWS for completing fish surveys as well as RGSM augmentation. This past year, the PoSA received over 20,000 hatchery-reared RGSM through our partnership with USFWS. Currently, we are preparing for the 2022 field season and are excited to continue this work with all of our partners.

– Alan Hatch, Director of Department of Natural Resources

UNIVERSITY OF NEW MEXICO

UNM is a comprehensive, research-intensive (R1) institution of higher education that serves the State of New Mexico and the nation. In 2021, UNM led research in water quality, ecosystem dynamics, hydrodynamic modeling, habitat mapping, and population biology of protected species. Research activities engaged students at all levels to create pathways to careers in environmental science and policy. Databases, specimens and archives that support MRG research and management are held at UNM facilities like the Earth Data Analysis Center, New Mexico Natural Heritage and the Museum of Southwestern Biology. UNM personnel are active in the EC, the SAMC, and Rio Grande Silvery Minnow Conceptual Ecological Model/Genetics Ad Hoc. UNM collaborates broadly with other program partners to connect scientific results to adaptive management action to benefit species and the ecosystems that they depend on.

– Thomas Turner, Professor of Biology and Curator of Fishes in the Museum of Southwestern Biology

U.S. FISH AND WILDLIFE SERVICE

The USFWS Ecological Services (ES), Fisheries, and Refuge Programs leads Recovery efforts for Threatened and Endangered species in the MRG. In 2021, we surveyed and monitored SWFL, yellow-billed cuckoo, New Mexico meadow jumping mouse, and Pecos sunflower, as well as produced, augmented, and salvaged Rio Grande silvery minnow. Our refuges actively restore and maintain habitat, and ES is working with our partners to conserve the species and move towards Recovery. We also participated in the planning process for the lower reach of the river and provided technical assistance towards the implementation of the 2016 Biological Opinion. Specifically, we have begun planning for future reintroductions of RGSM outside of currently occupied areas. These plans include Tribal and partner coordination that will kick off in 2022.

– Debra Hill, Large River Restoration and Recovery Program Supervisor

U.S. BUREAU OF RECLAMATION

Reclamation, through its commitment to the Collaborative Program, continues to work hard to find a balance in meeting the needs of endangered species and other wildlife, as well as the Pueblos, farmers, cities, and compact agreements. Reclamation remains steadfast in its the support of the Collaborative Program's mission through a variety of projects, as well as funding the third-party management of the Collaborative Program. One of the projects we would like to highlight in our efforts is the CSU-UNM Geomorphology/Habitat Linkage Research Project, which uses an interdisciplinary approach to improve understanding of the linkages among dynamic hydrologic and geomorphic processes, the physical habitat conditions needed by the RGSM and observed RGSM population dynamics. The study analyzes long-term datasets to identify geomorphic trends and modeling is performed to simulate hydraulics in the river channel and floodplains. Maps identify potentially inundated areas for a range of flows and those areas are filtered by the RGSM life-stage habitat criteria. This allows for development of flow-habitat rating curves that are used to assess the interaction between discharge and habitat availability in multiple subreaches for all years. Some key insights include: 1) Habitat projects should encourage bank erosion, channel migration, or other actions that increase habitat complexity, and 2) analyses that include habitat metrics should investigate methods to improve accuracy or account for uncertainty of bankfull/ overbanking discharge estimates.

– Ari Posner, Physical Scientist, Technical Services Division

Photo credit: Jesse Shuck, SWCA Environmental Consultants

OUTLOOK FOR 2022

Photo credit (left to right): Pecos sunflower, J. N. Stuart | Rio Grande silvery minnow, Museum of the Big Bend | yellow-billed cuckoo, Andy Reago and Chrissy McClarren | New Mexico meadow jumping mouse, U.S. Fish and Wildlife Service | southwestern willow flycatcher, Shannon Caruso, University of New Mexico

The planned direction for 2022 builds on the many accomplishments of 2021. Moving forward, the Collaborative Program is poised to be more relevant and responsive to management needs and questions. New Mexico faces a worsening water crisis that threatens conservation, research and planning efforts. This situation is an opportunity for the Collaborative Program to increase its relevance by considering the effects of climate change on the ecosystem, as well as on individual signatories and the Collaborative Program's progress toward its mission. The Science & AM Plan and LTP provide a solid framework within which to sculpt the Collaborative Program's response to management needs in light of drought and climate change. By building on these plans and utilizing tools such as the SAMIS, the Collaborative Program will better understand and support ecosystem health in the MRG Valley. In 2022, the Collaborative Program will build on existing signatory partnerships, transparently share information, evaluate and apply new findings, and generate management-relevant recommendations. Although there will be challenges, the Collaborative Program is better prepared than ever to embrace what lies ahead.

Many organizations, including our signatories, are implementing programs to tackle issues associated with climate change in New Mexico. The Collaborative Program will serve as a forum to share and synthesize information from these varied efforts, and use that information to develop adaptive management recommendations. In this way, the Collaborative Program will serve as both a clearinghouse and an incubator of adaptive strategies relating to listed species.

By building partnerships with external programs based upon the mutual and open exchange of information, the Collaborative Program will strengthen the caliber of its research and management recommendations. To collect, organize, synthesize, and evaluate scientific findings in the context of management needs, the Collaborative Program will utilize the tools and venues its developed, including the SAMIS, Collaborative Seminars, S&T Ad Hoc Groups, the Science Symposium, and the Collaboratory, which will debut in 2022. Through participation in the Collaborative Program, signatories will have the opportunity to contribute cooperatively to the advancement of science related to listed species and the greater MRG ecosystem, and to respond to the priority questions and issues of today and tomorrow.

Debbie Lee
PROGRAM MANAGER
Program Support Team
WEST, Inc.

Catherine Murphy
SCIENCE COORDINATOR
Program Support Team
WEST, Inc.

BUREAU OF RECLAMATION

Buckman Direct Diversion

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