

*State of New Mexico*  
**NONPOINT SOURCE  
MANAGEMENT PROGRAM**



**2023 Annual Report**

*New Mexico Environment Department  
Surface Water Quality Bureau  
Watershed Protection Section*





# State of New Mexico Nonpoint Source Management Program 2023 Annual Report

## **Published By:**

The New Mexico Environment Department  
Surface Water Quality Bureau  
Watershed Protection Section  
1190 St. Francis Drive  
Santa Fe, New Mexico 87505

## **In cooperation with:**

The Natural Resources Conservation Service, New Mexico Department of Game and Fish, New Mexico State Forestry Division, United States Forest Service and Bureau of Land Management.

Copies of this report and other reports are available on the Surface Water Quality Bureau website:

[www.env.nm.gov/surface-water-quality/watershed-protection-section/](http://www.env.nm.gov/surface-water-quality/watershed-protection-section/)



January 29, 2024

Kim Ngo  
Acting Water Division Director  
U.S. Environmental Protection Agency, Region 6  
1201 Elm Street, Suite 500  
Dallas, Texas 75270

Dear Acting Director Ngo:

I am pleased to submit New Mexico's 2023 Nonpoint Source Management Program Annual Report (Report). In this Report we document the progress made in meeting the program milestones set forth in our Nonpoint Source Management Plan.

The Nonpoint Source Management Program has six core objectives, and I would like to briefly highlight our accomplishments made during 2023 for each:

1. Under the watershed-based planning objective, EPA accepted an update to a watershed-based plan for the Mora River to include the Wolf Creek watershed. The plan and EPA's acceptance letter are posted at [www.env.nm.gov/surface-water-quality/wbp](http://www.env.nm.gov/surface-water-quality/wbp). NMED also funded one new watershed-based planning project in 2023 using Clean Water Act Section 319 funds.
2. In the area of water quality improvement, NMED submitted a Nonpoint Source Success Story nomination for Redondo Creek in Valles Caldera National Preserve. The nomination provided compelling evidence that turbidity decreased as a result of projects in the area. NMED funded and work began on three new on-the-ground projects that implement watershed-based plans. Four such projects were completed and are summarized in the Report.
3. To better protect water quality, two projects to address impacts of wildfires in the Rio en Medio and Bear Creek watersheds were completed during the reporting period. Staff reviewed 45 projects authorized by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act and confirmed their consistency with the state's existing Section 401 certification of the Corps' Nationwide Permits. Staff also conducted document reviews and site visits to ensure surface water quality protection under the New Mexico Mining Act.
4. Related to education and outreach, in collaboration with the New Mexico Water Resources Research Institute, NMED hosted a workshop for stakeholders and the public to provide input for the revision of the Nonpoint Source Management Plan, which NMED plans to submit to EPA in 2024 for approval. Two issues of the Clearing the Waters newsletter ([www.env.nm.gov/surface-water-quality/newsletters](http://www.env.nm.gov/surface-water-quality/newsletters)) were published. The Surface Water Quality Bureau email list is slowly growing and is currently about 2,018 addresses.
5. In ground water quality protection, NMED's Ground Water Quality Bureau (GWQB) issued 18 New, Renewal, or Renewal and Modification Discharge Permits. GWQB also conducted six water fairs in Grant, Eddy, Guadalupe, Curry, Torrance, and Santa Fe counties where residents brought approximately 48 well water samples for analysis of common pollutants such as nitrate.

6. Finally, to better cooperate with other agencies on water quality protection and improvement, NMED and the U.S. Forest Service Southwest Region 3 renewed a Memorandum of Understanding to protect water quality in New Mexico. Staff from NMED's Watershed Protection Section attended eight soil and water conservation district (SWCD) board meetings, with four different SWCDs, and continued coordinating with other state and federal agencies on implementation projects and water quality protection.

We thank you for your support of these efforts and look forward to working together to improve water quality and to continue to reduce nonpoint source pollution in New Mexico. Should you have any questions about New Mexico's Nonpoint Source Management Program Annual Report, please feel free to contact me (505-470-5018; [shelly.lemon@env.nm.gov](mailto:shelly.lemon@env.nm.gov)) or Kate Lacey, our new Watershed Protection Section Program Manager, at 505-946-8863 or [kathryn.lacey@env.nm.gov](mailto:kathryn.lacey@env.nm.gov).

Sincerely,

**Shelly Lemon** Digitally signed by Shelly Lemon  
Date: 2024.01.29 15:41:48 -07'00'

Shelly Lemon, Bureau Chief  
Surface Water Quality Bureau

Cc: Kyla Chandler, State and Tribal Grants Project Officer, US EPA Region 6  
Brian Fontenot, Nonpoint Source Program Technical Team, US EPA Region 6  
John Rhoderick, Director, NMED Water Protection Division  
Kate Lacey, Program Manager, NMED Watershed Protection Section



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## Table of Contents

<b>Executive Summary</b>	<b>1</b>
<b>Introduction</b>	<b>3</b>
What is Nonpoint Source Pollution?	3
Clean Water Act Section 319	4
Clean Water Act Section 303(d) and 305(b)	5
<b>New Mexico’s Nonpoint Point Source Management Program</b>	<b>6</b>
Watershed-Based Planning Projects	6
Watershed Implementation Projects	7
River Stewardship Program	10
Red River Aquatic Habitat Restoration Project	14
<b>NPS Management Program Accomplishments in 2023</b>	<b>17</b>
Objective 1 – Complete WBPs to Enable Effective Implementation	17
Objective 1 Verification Milestones and Reports of Progress	17
Objective 2 – Improve Water Quality	19
Objective 2 Verification Milestones and Reports of Progress	19
Objective 3 – Protect Water Quality	23
Objective 3 Verification Milestones and Reports of Progress	23
Objective 4 – Share Information on Surface Water Quality	28
Objective 4 Verification Milestones and Reports of Progress	28
Objective 5 – Protect Ground Water Quality	30
Objective 5 Verification Milestones and Reports of Progress	30
Objective 6 – Cooperate with other Agencies on Water Quality Protection and Improvement	31
Objective 6 Verification Milestones and Reports of Progress	31
<b>NPS Pollutant Load Reduction Reporting</b>	<b>34</b>
<b>Summaries of Section 319 Projects Completed in 2023</b>	<b>35</b>
<b>Summary for New Mexico’s River Stewardship Program Projects Completed in 2023</b>	<b>43</b>
<b>Summary of Office of the Natural Resources Trustee Partnership Projects Completed in 2023</b>	<b>51</b>
<b>New Mexico Mining Act</b>	<b>52</b>
<b>Wetlands Program</b>	<b>55</b>
Wetlands Roundtables	55
Wetland Projects Completed in 2023	57
<b>Equity and Environmental Justice</b>	<b>60</b>



## Table of Contents

<b>Additional Management Practices by Non-NMED Agencies</b>	<b>62</b>
Natural Resources Conservation Service	62
New Mexico Department Game and Fish	66
New Mexico State Forestry Division	71
US Forest Service - Cibola National Forest	78
US Forest Service - Gila National Forest	81
US Forest Service - Santa Fe National Forest	84
Bureau of Land Management - Rio Puerco Field Office	88
Bureau of Land Management - Roswell Field Office	89





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## Executive Summary

Polluted runoff, or nonpoint source (NPS) pollution, is defined by United States Environmental Protection Agency (EPA) as “caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, streams, wetlands, coastal waters and ground waters.” NPS pollution is the leading cause of water quality degradation in the United States and poses a substantial problem for the health of New Mexico’s rivers, wetlands, lakes and streams.

When Congress amended the Clean Water Act (CWA) in 1987, Section 319 was added to provide federal leadership to assist states, territories and tribes in developing programs that address NPS pollution. Under Section 319, states, territories and tribes receive grant funding to support activities such as: outreach and education, training, watershed-based planning, implementation of best management practices (BMPs), and monitoring to assess implementation efficacy.

This annual report to the EPA is required by Section 319(h)(11) of the Clean Water Act. It provides an overview of Nonpoint Source Management Program related activities conducted in New Mexico from October 1, 2022 through September 30, 2023.

Towards the objective of **completing watershed-based plans (WBPs)**, EPA accepted an update to a watershed-based plan for the Mora River to include the Wolf Creek watershed. The plan and EPA’s acceptance letter are posted at [www.env.nm.gov/surface-water-quality/wbp](http://www.env.nm.gov/surface-water-quality/wbp). One new watershed-based planning project, funded under Section 319, was developed and began.

Towards the objective of **water quality improvement**, NMED submitted a Nonpoint Source Success Story nomination for Redondo Creek in Valles Caldera National Preserve. The nomination provided compelling evidence that turbidity decreased as a result of projects in the area. Three new on-the-ground projects that implement watershed-based plans, funded under Section 319, were developed and began. Four such projects were completed and are summarized in this Report.

For **water quality protection**, two projects to address impacts of wildfires in the Rio en Medio and Bear Creek watersheds were completed during the reporting period. Staff reviewed 45 projects authorized by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act and confirmed their consistency with the state’s existing Section 401 certification of the Nationwide Permits. Staff also conducted document reviews and site visits to ensure surface water quality protection under the New Mexico Mining Act.

For the objective of **sharing information on surface water quality**, in collaboration with the New Mexico Water Resources Research Institute, NMED hosted a workshop for stakeholders and the public to provide input for the revision of the Nonpoint Source Management Plan which NMED plans to submit to EPA in 2024 for approval. Two issues of the *Clearing the Waters* newsletter ([www.env.nm.gov/surface-water-quality/newsletters](http://www.env.nm.gov/surface-water-quality/newsletters)) were published. The Surface Water Quality Bureau email list is slowly growing and currently about 1,970 addresses.

For **protection of ground water quality**, NMED’s Ground Water Quality Bureau (GWQB) issued 18 New, Renewal, or Renewal and Modification Discharge Permits. GWQB also conducted six water fairs in Grant,





## Executive Summary

Eddy, Guadalupe, Curry, Torrance, and Santa Fe Counties where residents brought approximately 48 well water samples for analysis of common pollutants such as nitrate.

To better **cooperate with other agencies on water quality protection and improvement**, NMED and the U.S. Forest Service Southwest Region 3 renewed a Memorandum of Understanding to protect water quality in New Mexico. Staff from NMED's Watershed Protection Section attended eight soil and water conservation district (SWCD) board meetings, with four different SWCDs, and continued coordinating with other state and federal agencies on implementation projects and water quality protection.



## Introduction

This annual report to the United States Environmental Protection Agency (EPA) provides an overview of nonpoint source (NPS) management related activities conducted in New Mexico in federal fiscal year 2023 (October 1, 2022 through September 30, 2023) by the Watershed Protection Section (WPS) of the New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB). The report presents the state's progress in meeting the milestones outlined in the goals and objectives of the New Mexico Nonpoint Source Management Program and provides information on reductions in NPS pollutant loading and improvements to water quality of New Mexico watersheds as required under Section 319(h) (11) of the Clean Water Act (CWA).

Most funding to support the New Mexico Nonpoint Source Management Program was provided through Section 319(h) grants awarded to NMED by EPA. Activities and projects reported are CWA Section 319 projects, and those implemented under the state-funded River Stewardship Program (RSP), the New Mexico Wetlands Program, CWA Section 401 activities, New Mexico Mining Act activities, and NPS projects implemented by other natural resource agencies outside of NMED.

### What is Nonpoint Source Pollution?

According to information from EPA at [www.epa.gov/nps](http://www.epa.gov/nps),

NPS pollution generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification. NPS pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters.

Some examples of nonpoint source pollution include:

- Excess fertilizers, herbicides and insecticides from agricultural lands and residential areas;
- Oil, grease and toxic chemicals from urban runoff and energy production;
- Sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks;
- Salt from irrigation practices and acid drainage from abandoned mines;
- Bacteria and nutrients from livestock, pet waste and faulty septic systems;
- Atmospheric deposition and hydromodification.

As in most other states, NPS pollution is the leading cause of water quality problems in New Mexico.



*An overturned tanker discharged thousands of gallons of asphalt emulsion directly into Jaybird Canyon located in the Gila National Forest. NMED was notified Oct. 4, 2022.*



## Clean Water Act Section 319

NPS pollution is the leading cause of water quality degradation in the United States and poses a substantial problem for the health of New Mexico’s rivers, wetlands, lakes, and streams. When Congress amended the CWA in 1987, Section 319 was added to provide federal leadership to assist states, territories and tribes in developing programs that address NPS pollution. Under Section 319, states, territories, and tribes receive grant funding to support the following activities: outreach and education, training, watershed-based planning, implementation of best management practices (BMPs), and monitoring to assess implementation efficacy. At the heart of the Section 319 program in New Mexico is working with stakeholders to seek solutions through collaboration in developing and implementing watershed-based plans that mitigate NPS pollution.

Section 319 contains three main strategies for addressing NPS pollution:

- Requires states to prepare assessment reports of their NPS pollution problems.
- Requires each state to develop a management program to control NPS pollution and improve water quality problems within the state.
- Creates a grant program to fund implementation of the management program for the assessment and control of NPS pollution.

New Mexico’s NPS Management Program is described in the *New Mexico Nonpoint Source Management Plan* approved by EPA on August 1, 2019. The plan is available to review at <http://www.env.nm.gov/surface-water-quality/watershed-protection-section>.

The NPS Management Program is supported largely by Section 319(h) grant funds. Recent years’ funding awarded by EPA for New Mexico’s NPS Management Program has been stable, with annual funds averaging \$2.0 million in fiscal years 2017-2023, and increasing an average of 1.4% each year.



*Before (left photo) and after (right photo). A Zuni bowl stormwater outlet drop structure was constructed in an urban area of Santa Fe to reduce E.coli and other pollutants in stormwater runoff before reaching the Santa Fe River. This is one example of a stormwater BMP that was designed for RSP project 20-M.*



## Clean Water Act Sections 303(d) and 305(b)

Two sections of the CWA designed to help understand both point sources and nonpoint sources statewide are Sections 303 and 305. Under Section 303(d), states are required to list all polluted surface waters in their jurisdiction which do not meet state water quality standards (also known as the impaired waters list). Under Section 305(b), states must publish a biennial report on the health of all surface waters. In New Mexico, the 305(b) report includes the 303(d) list and is referred to as the *State of New Mexico CWA Section 303(d)/305(b) Integrated Report (Integrated Report, for short)*. Current and past Integrated Reports are available at [www.env.nm.gov/surface-water-quality/303d-305b](http://www.env.nm.gov/surface-water-quality/303d-305b).

In New Mexico, the most common NPS impairments in streams are caused by (in order of prevalence, based on the *2022-2024 Integrated Report*) temperature, *E. coli*, nutrients, suspended or settleable solids (including turbidity and stream bottom sediments), and aluminum. In lakes and reservoirs, the most common water quality parameters in excess of water quality standards are mercury in fish tissue, polychlorobiphenyls (PCB's) in fish tissue, temperature, eutrophication (nutrient impacts), and dichlorodiphenyl-trichloroethane (DDT) in fish tissue.

These pollutants prevent designated uses from being fully supported in many of New Mexico's waters. Designated uses not fully supported in New Mexico's assessed rivers and streams (with the percentage of assessed waters not supporting uses in parentheses) include aquatic life uses (63%), primary and secondary contact (23%), wildlife habitat (3%), livestock watering (2%), irrigation (2%), and domestic water supply (1%). Most of these impairments are primarily or entirely caused by NPS pollution.



*Restoration Volunteer Day at the Valles Caldera. WPS staff assists with the construction of a one rock dam.*

The majority of NPS pollution in New Mexico's streams is preliminarily attributed to (in order of prevalence) unidentified sources, unmanaged or improperly managed rangeland grazing, road and bridge runoff, on-site treatment systems (e.g., septic systems), streambank modifications and destabilization, waterfowl, wildlife other than waterfowl, and drought. The *2022-2024 Integrated Report* provides probable source summary information only for waters with Total Maximum Daily Loads (TMDLs). Only one lake in New Mexico (Bluewater Lake) had an approved TMDL when the *2022-2024 Integrated Report* was prepared, and the pollutant source was listed as "unknown" in that TMDL document.



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## New Mexico's Nonpoint Source Management Program

The overall, long-term goal of New Mexico's NPS Management Program is:

*To implement an adaptive watershed-based restoration and protection program with the active assistance of stakeholders, for all watersheds within New Mexico, to meet and maintain water quality standards and designated uses of surface water, and to protect ground water resources.*

As lead agency for the management of NPS pollution, NMED coordinates activities within the state through the SWQB and the Ground Water Quality Bureau (GWQB). In accordance with the CWA, the SWQB has developed a Nonpoint Source Management Program planning document (NPS Management Plan). The current NPS Management Plan was approved by EPA in August 2019 and is available at: [www.env.nm.gov/surface-water-quality/nps-plan](http://www.env.nm.gov/surface-water-quality/nps-plan).

The NPS Management Program includes activities carried out by NMED staff to meet the objectives of the program and directs funding to support watershed-based planning projects, watershed-implementation projects, and RSP projects. The NPS Management Program also relies on established resource protection programs, national and state NPS pollution prevention programs, and activities of other land management and resource protection agencies to address NPS pollution. New Mexico identifies programs and activities that will facilitate the achievement of surface water quality standards, using a voluntary approach to implement water quality improvements.

NMED reports how CWA Section 319(h) funds and state matching funds are used, in EPA's Grants Reporting and Tracking System (GRTS). The funding is allocated to projects. Projects other than statewide projects that are in progress or completed in the reporting period (October 1, 2022 through September 30, 2023) are depicted in the "2023 Active Projects" map on page 16.

Four tables below list projects in progress or completed in 2023, including staff activities, Section 319 funded watershed-based planning projects, Section 319 funded implementation projects, and state-funded projects. The tables include links to GRTS for more detailed information for each project. The available information includes contact information for project managers, project work plans, and (for completed projects) final project reports. Links to GRTS project profiles for *new* projects are not yet available for public profile viewing at the time of publishing this report, but will be updated when FY2024-FY2028 Section 319 is awarded. In Table 3, *new* projects are designated with a project number starting with "24."

### Watershed-Based Planning Projects

An important component of the NPS Management Program is the watershed-based plan (WBP) approach as outlined in the guidance provided in EPA's *Nonpoint Source Program and Grants Guidelines for States and Territories* ([www.epa.gov/nps/319-grant-current-guidance](http://www.epa.gov/nps/319-grant-current-guidance)). A WBP expands on the information provided in a TMDL by identifying causes and sources of impairment, recommending management measures, estimating expected load reductions from management measures, providing methods to measure implementation



success, estimating funding needs, and outlining potential education and outreach efforts. NMED supports watershed-based planning through a competitive subgrant process, conducted approximately every other year, and through technical support provided to partner agencies and stakeholder groups interested in water quality. WBP projects completed or in progress in 2023 are listed in Table 1 below. Completed WBPs and more information on watershed-based planning are available at [www.env.nm.gov/surface-water-quality/wbp](http://www.env.nm.gov/surface-water-quality/wbp).

Table 1: Watershed-based planning projects completed or in progress, 10/1/2022 – 9/30/2023.

Grant Number	Project Number	Project Title	Project End Date	Section 319 Funds	Local Match	Summary Report
99610119	20-E	Wolf Creek Update to the Watershed-Based Plan for the Mora River – Upper Canadian Plateau	12/31/2022	\$75,574	\$94,591	<a href="#">VIEW</a>
01F98701	22-SJW	San Juan Watershed-Based Planning Project	12/31/2024	\$116,056	\$77,626	<a href="#">VIEW</a>
99610120	23-C	Rio Ruidoso Watershed Improvement Project - Planning Phase	6/30/2026	\$137,250	\$91,500	<a href="#">VIEW</a>

## Watershed Implementation Projects

Through a combination of funding programs, partnerships, and education and outreach activities, New Mexico encourages interested parties to implement WBPs to control or reduce the degree of water quality impairments. The following table lists New Mexico’s current and recently completed Section 319 watershed implementation projects.

Projects denoted by “Part 1,” “Part 2,” or “Part 3” indicate a single project funded by more than one Section 319 grant from EPA to NMED. Projects with “Phase” in their titles were developed and funded separately (under separate sub-grant agreements) from earlier projects completed in the same area.

Table 2: Section 319 Watershed Implementation Projects completed or in progress, 10/1/2022 – 9/30/2023.

Grant Number	Project Number	Project Title	Project End Date	Section 319 Funds	Local Match	Summary Report
99610119	20-C	North Ponil Restoration Project (Part 2)	09/30/2023	\$4,466	\$0	<a href="#">VIEW</a>



State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

Table 2: continued

Grant Number	Project Number	Project Title	Project End Date	Section 319 Funds	Local Match	Summary Report
99610119	20-O	Reducing Fecal Waste in the Rio Fernando de Taos	06/30/2023	\$47,891	\$57,739	<a href="#">VIEW</a>
99610119	20-P	Post Fire rehabilitation of the Bear Creek Watershed (Part 2)	12/31/2022	\$145,196	\$58,714	<a href="#">VIEW</a>
99610119	20-Q	Restoring the Rio Quemado Riverine Wetland on Los Potreros Open Space, in Chimayo, NM (Part 2)	12/31/2023	\$143,718	\$81,097	<a href="#">VIEW</a>
99610119	20-R	Watershed Project Implementation for the Mora River – Upper Canadian Plateau Phase IB (Part 3)	06/30/2023	\$174,859	\$76,088	<a href="#">VIEW</a>
99610119	21-C	Rincon Arroyo Watershed Stabilization Project to Reduce <i>E. coli</i> loading to the Rio Grande (Part 3)	06/30/2023	\$256,952	\$214,008	<a href="#">VIEW</a>
99610119	21-D	Temperature and Erosion Reduction in Lower Cow Creek – Phase II (Part 3)	06/30/2023	\$171,726	\$50,632	<a href="#">VIEW</a>
99610119	21-E	Post Fire Rehabilitation of the Rio en Medio (Part 2)	12/31/2022	\$85,711	\$50,350	<a href="#">VIEW</a>



State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

Table 2: continued

Grant Number	Project Number	Project Title	Project End Date	Section 319 Funds	Local Match	Summary Report
99610119	21-F	Bonito Meadow Stream and Wetland Restoration Project, Phase 1	06/30/2024	\$227,824	\$194,227	<a href="#">VIEW</a>
99610119	21-G	Bluewater Creek Riparian Improvement Project	12/31/2022	\$189,094	\$634,158	<a href="#">VIEW</a>
99610119	21-H	Rio Nutrias Watershed-Based Plan Implementation Phase II	06/30/2024	\$219,377	\$310,950	<a href="#">VIEW</a>
99610119	21-I	Early Public Input Workshop for the Nonpoint Source Management Plan Revision	06/30/2023	\$30,656	\$0	<a href="#">VIEW</a>
01F98701	21-SJW	Lower Animas Watershed Based Plan Implementation Projects Phase 3	09/30/2024	\$230,807	\$153,643	<a href="#">VIEW</a>
99610120	22-C	Temperature and Erosion Reduction in Lower Cow Creek – Phase III	09/30/2025	\$257,640	\$172,076	<a href="#">VIEW</a>
99610120	22-D	Restoring Springs and Wetlands on State Trust Lands in the Lower Embudo Valley	12/31/2024	\$150,510	\$104,408	<a href="#">VIEW</a>
99610120	22-E	Managing Watershed Runoff into the Mesilla Valley	06/30/2024	\$443,067	\$295,378	<a href="#">VIEW</a>
99610120	22-F	Watershed Project Implementation for Upper Gallinas River and Porvenir Creek - Phase IV	12/31/2024	\$505,063	\$345,967	<a href="#">VIEW</a>





Table 2: continued

Grant Number	Project Number	Project Title	Project End Date	Section 319 Funds	Local Match	Summary Report
<p><i>For the new projects listed below, these GRTS project entries are listed in the “Pre-Award” module and a Summary Report is not available for public profile viewing until FY2024-FY2028 Section 319 is awarded at which time they will be updated.</i></p>						
99610121	24-C	Upper Cieneguilla Creek Wetland Restoration and Enhancement Project	06/30/2026	\$99,695	\$74,894	
99610121	24-D	Watershed Project Implementation and Post-Fire Remediation for Sapello River Watershed - Phase I	12/31/2026	\$782,147	\$522,686	
99610121	24-E	Watershed Project Implementation for Wolf Creek Watershed - Phase I	12/31/2026	\$93,884	\$82,690	

## River Stewardship Program

A key part of the NPS Management Program is the state-funded RSP. The goal of RSP is to fund projects that enhance the health of rivers by addressing the root causes of poor water quality and stream habitat. The New Mexico Legislature appropriates funds for RSP to design and construct projects that improve surface water quality or river habitat statewide and to provide state matching funds to match NMED CWA grants. Annual appropriations have ranged from \$500,000 to \$12,250,000. The New Mexico Legislature appropriated \$1,500,000 in capital outlay funds for state fiscal year 2024.

NMED completed a Request for Proposals (RFP) in June 2023 resulting in eighteen new RSP projects. Just over \$20,500,000 in funding was requested for RSP projects in the RFP where NMED was able to award just over \$10,300,000 to projects. NMED submitted a new FY24 RFP in August 2023 for new projects which will be selected and funded in the next reporting period.

During the 2023 New Mexico Legislative Session, legislators passed Senate Bill 9 to create the Land of Enchantment Legacy Fund which provides a percentage (10%) of the fund annually to the River Stewardship Program. The first distribution of the Land of Enchantment Legacy Fund will be approximately \$1,250,000 and starts in state fiscal year 2025 during the next reporting period. To further support the growing RSP, NMED submitted a request for \$5,000,000 in capital outlay funds for RSP for state fiscal year 2025. The amount the RSP will receive of the \$5,000,000 request will be determined during the 2024 New Mexico Legislative Session.



State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

Table 3: River Stewardship Program (RSP) projects completed or in progress, 10/1/2022 – 9/30/2023.

Grant Number	Project Number	Project Title	Project End Date	State Funds	Summary Report
99610119	20-F	Adair Spring Restoration	06/30/2023	\$57,848	<a href="#">VIEW</a>
99610119	20-G	Riparian Restoration in Torreon Wash Watershed	06/30/2023	\$174,113	<a href="#">VIEW</a>
99610119	20-H	Valle de Oro National Wildlife Refuge Unit 2 Wetland Development and Water Quality Improvement Project	06/30/2023	\$160,000	<a href="#">VIEW</a>
99610119	20-I	Animas River Habitat Enhancement and Bank Stabilization Project	06/30/2023	\$138,324	<a href="#">VIEW</a>
99610119	20-J	Wetland and Stream Restoration of Lower Jaramillo Creek	06/30/2023	\$227,493	<a href="#">VIEW</a>
99610119	20-K	Restoration of Trout Habitat on the Cimarron River	06/30/2023	\$454,066	<a href="#">VIEW</a>
99610119	20-M	Santa Fe River – East Alameda Rain Garden and Camino Escondido Zuni Bowls	06/30/2023	\$167,342	<a href="#">VIEW</a>
99610119	20-N	Pecos River Cowles Restoration Project	12/31/2023	\$281,119	<a href="#">VIEW</a>
99610120	22-G	Restoration of Gila Trout and Riparian Habitat on Black Canyon Creek, Gila National Forest	06/30/2024	\$207,255	<a href="#">VIEW</a>
99610120	22-H	Restoring Stream and Riparian Health along the Santa Cruz River on Los Potreros Open Space	06/30/2024	\$146,371	<a href="#">VIEW</a>
99610120	22-I	Reimagining San Vicente Creek	06/30/2024	\$170,537	<a href="#">VIEW</a>



State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

Table 3: continued

Grant Number	Project Number	Project Title	Project End Date	State Funds	Summary Report
99610120	22-K	Centerfire Creek Headwaters Restoration Project	06/30/2024	\$445,370	<a href="#">VIEW</a>
99610120	22-L	Los Alamos Canyon Creek Watershed Restoration Project	06/30/2024	\$291,709	<a href="#">VIEW</a>
99610120	22-M	Riparian Restoration in Torreon Wash Watershed - Phase II	06/30/2024	\$208,897	<a href="#">VIEW</a>
99610120	22-N	San Antonio Creek Headwaters and Erosion Control Project	06/30/2024	\$259,214	<a href="#">VIEW</a>
99610120	22-O	Chihuahueños Creek Headwaters Restoration Project	06/30/2025	\$209,990	<a href="#">VIEW</a>
99610120	22-P	Post-Wildfire Restoration of Little Turkey Creek, Willow Creek Watershed, Southwestern New Mexico	06/30/2024	\$133,061	<a href="#">VIEW</a>
99610120	22-Q	Dalton Fishing Area Restoration Project	06/30/2025	\$243,245	<a href="#">VIEW</a>
99610120	22-R	Two Rivers Park River Restoration Phase III	06/30/2024	\$215,730	<a href="#">VIEW</a>
99610120	23-D	Stream and Wetland Restoration along the Arroyo La Mina in the Lower Embudo Valley	6/30/2025	\$310,080	<a href="#">VIEW</a>
<p><i>For the new projects listed below, these GRTS project entries are listed in the “Pre-Award” module and a Summary Report is not available for public profile viewing until FY2024-FY2028 Section 319 is awarded at which time they will be updated.</i></p>					
99610121	24-F	Expanding Riparian and Wetland Resilience in Burro Ciénaga, NM	6/30/2025	\$416,875	
99610121	24-G	Stream and Riparian Restoration on Stone Creek, Quemado Ranger District, Gila National Forest	6/30/2025	\$291,174	



State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

Table 3: continued

Grant Number	Project Number	Project Title	Project End Date	State Funds	Summary Report
99610121	24-H	Restoration of Trout Habitat on the Cimarron River – Phase II	6/30/2025	\$471,935	
99610121	24-I	Wetland and Stream Restoration in the Moreno Valley	6/30/2025	\$95,737	
99610121	24-J	Restoration of Tijeras Creek Floodplain, Streambed and Riparian Habitat	6/30/2025	\$824,352	
99610121	24-K	Reimagining San Vicente Creek and the Silver City Watershed – Phase 2	6/30/2025	\$298,387	
99610121	24-L	Mora River Restoration, Rio Mora National Wildlife Refuge – Phase II	6/30/2025	\$439,981	
99610121	24-M	Sapello River Restoration, Pritzlaff Ranch	6/30/2025	\$415,720	
99610121	24-N	Taos Pueblo Ecological Restoration of Buffalo Pasture and the Rio Lucero Project	6/30/2025	\$676,859	
99610121	24-O	Santa Clara Creek Restoration Project	6/30/2025	\$1,031,352	
99610121	24-P	Improving Watershed Hydrologic Function along Farming and Rangeland Communities of the Rio Grande Basin	6/30/2025	\$2,449,437	
99610121	24-Q	Calf Canyon and Hermit’s Peak Post-fire Rapid Response Mitigation and Protection of Acequias in Mora County	6/30/2025	\$515,906	



Table 3: continued

Grant Number	Project Number	Project Title	Project End Date	State Funds	Summary Report
99610121	24-R	San Antonio Creek Riparian and Beaver Habitat Restoration Project	06/30/2025	\$211,377	
99610121	24-S	Adapting and Improving River Stewardship in the Torreon Wash Watershed	06/30/2025	\$221,660	
99610121	24-T	Willow Creek Watershed Restoration Project – Private Lands Reach	06/30/2025	\$598,980	
99610121	24-U	Curb Cuts and County Roads: Greening Urban Infrastructure to Improve Water Quality in San Vicente Creek	06/30/2025	\$302,658	
99610121	24-V	Rio Pueblo Restoration Project	06/30/2025	\$788,562	

## Projects Funded by the Office of Natural Resources Trustee

### Red River Aquatic Habitat Restoration Project

In 2018, the New Mexico Office of Natural Resources Trustee (ONRT) and NMED signed a Memorandum of Agreement for WPS to manage an aquatic habitat restoration project on the Red River within the municipal limits of the Village of Questa. EPA and ONRT authorized the costs of this project to be reported as match to Section 319 grants. The project was successfully completed in June 2023 and basic information is represented in the following short table:

Table 4: Red River Aquatic Habitat Restoration Project.

Grant Number	Project Number	Project Title	Project End Date	State Funds	Summary Report
99610118	19-F	Red River Aquatic Habitat Restoration Project (Part 1)	06/30/2022	\$208,295	<a href="#">VIEW</a>
99610120	22-S	Red River Aquatic Habitat Restoration Project (Part 2)	06/30/2023	\$1,003,679	<a href="#">VIEW</a>



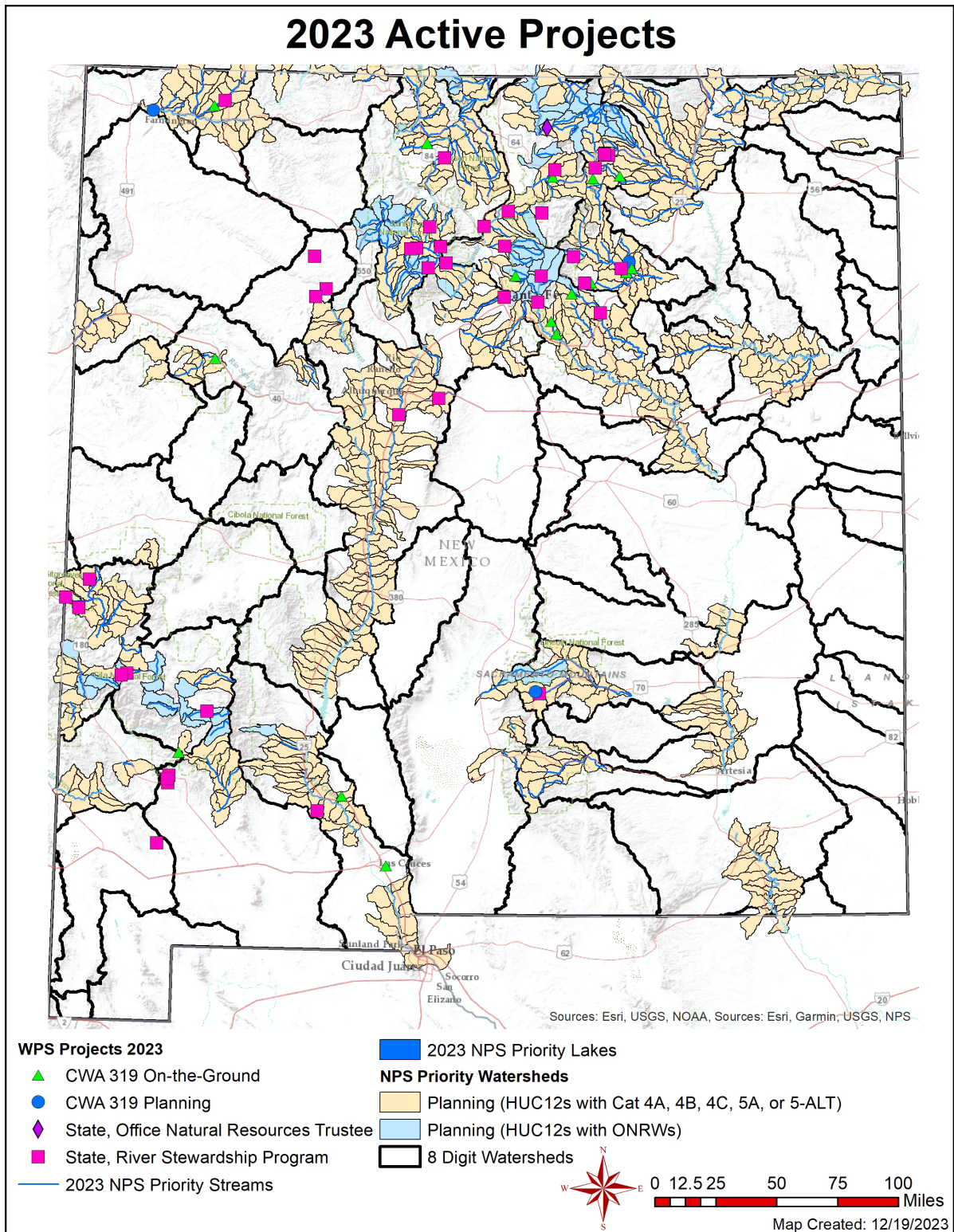
ONRT provided partial funding for Project 20-K in Table 3 (above). \$149,784 of the \$454,066 that make up the project budget were provided as a result of a Natural Resources Damage Assessment and Restoration (NR-DAR) settlement between ONRT and Fronk Oil, to address natural resource damages resulting from a 2016 tanker truck accident which resulted in petroleum products entering the Cimarron River.



*The Red River Aquatic Habitat Restoration Project. Retired WPS Program Manager, Abe Franklin pictured releasing fish at the Red River Aquatic Habitat project ribbon cutting ceremony.*

The comprehensive listing of Section 319, RSP and other state-funded projects is available at: [www.env.nm.gov/surface-water-quality/nmed\\_319\\_and\\_rsp\\_project\\_list](http://www.env.nm.gov/surface-water-quality/nmed_319_and_rsp_project_list).

This project list contains links to project pages with detailed information including project work plans and (for completed projects) final reports.



*Section 319 and River Stewardship Program projects active in 2023.*



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## NPS Management Program Accomplishments in 2023

NMED seeks to meet the long-term goal of the NPS Management Program with specific actions described in the NPS Management Plan taken over approximately a five-year period. The NPS Management Plan includes at its core six objectives aimed at reducing and preventing NPS pollution in New Mexico:

- 1) Complete WBPs to Enable Effective Implementation,**
- 2) Improve Water Quality,**
- 3) Protect Water Quality,**
- 4) Share Information on Surface Water Quality,**
- 5) Protect Ground Water Quality, and**
- 6) Cooperate with other Agencies on Water Quality Protection and Improvement.**

With each objective is a list of activities necessary to achieve the objective and verification milestones used to evaluate whether objectives have been attained. Milestones are an integral part of the NPS Management Program and a requirement under Section 319(b)(2)(c) of the Clean Water Act. The six program objectives and corresponding milestones from the NPS Management Plan are listed below, along with reports of progress made in federal fiscal year 2023 (October 1, 2022 through September 30, 2023). Use of *italics* below indicates text cited directly from the NPS Management Plan. Non-italics text is used to provide progress for 2023.

### **Objective 1 – Complete WBPs to Enable Effective Implementation**

*To produce WBPs that meet all nine elements identified in the Nonpoint Source Program and Grants Guidelines for States and Territories, and acceptable alternatives to WBPs, for an average of three priority watersheds per year.*

### **Objective 1 Verification Milestones and Reports of Progress**

- *In 2019 through 2023, at least one WBP per year, covering at least one priority watershed each, will be supplemented, updated, or completed, and accepted by the EPA as meeting the nine elements of WBPs.*

EPA accepted one update to a WBP during the reporting period: the Wolf Creek Update to the Watershed-Based Plan for the Mora River (Project 20-E in Table 1). The Wolf Creek WBP was accepted by EPA on May 18, 2023 as an acceptable alternative to a WBP. The Wolf Creek Watershed is one of the NPS Priority Watersheds, now ready for implementation projects.

Accepted WBPs are available at [www.env.nm.gov/surface-water-quality/wbp](http://www.env.nm.gov/surface-water-quality/wbp), via a “list of EPA-Accepted WBP, Draft WBP, and Watershed Restoration Action Strategies” near the bottom of that page.





- *Development of an index to use Recovery Potential Screening (RPS) to prioritize watershed-based planning projects will be reported in the NPS Annual Report for 2020. (Recovery Potential Screening is described in depth at [www.epa.gov/rps](http://www.epa.gov/rps).)*

A report of NMED’s use of RPS was provided in the earlier NPS Annual Report for 2020.

- *One or more streams are included within assessment category 5-alternative, as a result of cooperative WBP completion by WPS, MASS, and stakeholders, by 2022.*

The WBP for American Creek, a tributary of Cieneguilla Creek (HUC 110800020104) within the larger Cimarron River watershed, was accepted during the last reporting period by EPA as a WBP (EPA approval on May 17, 2022) and as a TMDL alternative (EPA approval on May 19, 2022) for the impairment parameters aluminum and *E. coli*. American Creek is in the 2022-2024 *Integrated Report* approved by EPA on April 26, 2022 and listed in reporting category 5-alternative for both of these parameters.

- *An inventory of watersheds covered by WAPs and an associated GIS coverage (posted on the SWQB mapper web site at <https://gis.web.env.nm.gov/oem/?map=swqb>) is completed, to update the list of priority watersheds for implementation, in 2019.*

This work was completed in an earlier reporting period. The result is available to review in the Surface Water Quality Bureau mapper linked above, in a group called “Wetland Action Plans.”

- *A post-fire response plan or project work plan that qualifies as a WBP alternative will be submitted to EPA within two years of any major wildfire occurring in the watershed of one or more streams with a coldwater or cool water aquatic life designated use and a fire severity that falls outside the natural range of variability for the affected forest types.*

In 2023, Hermit’s Peak Watershed Alliance submitted a post-fire mitigation project (Project 24-D in Table 2) for work on the Sapello River watershed (HUC 1108000402). The Sapello River Watershed, among many others, was impacted by the Hermit’s Peak – Calf Canyon Fire in 2022. This project was selected for funding under the Section 319 Implementation Solicitation for Applications during the reporting period. A post-fire mitigation work plan was developed as part of the Section 319 subgrant agreement, and a post-fire mitigation action plan was also written from a template provided by the Federal Emergency Management Agency (FEMA) and New Mexico Department of Homeland Security and Emergency Management (NMDHSEM) interagency working group. Both the subgrant agreement and the post-fire mitigation action plan were accepted by the EPA.

- *Watershed plans include information from major land owners and land management agencies, and all states, Indian nations, pueblos, and tribes, within their planning areas.*

The WBP completed in 2023 for Wolf Creek Watershed is nearly entirely privately owned and includes less than 1% of public lands owned by the National Park Service; no tribal lands are within the Wolf Creek Watershed planning area. Working with the private landowners on the



Wolf Creek Watershed was necessary to ensure that the information in the plan about land use was correct.

The San Juan Watershed-Based Planning Project (Project 22-SJW in Table 1) began in 2022 and the project area includes portions of Navajo Nation and Ute Mountain Ute lands. The work plan for this project describes how the sub-grantee (San Juan SWCD) will work with the Navajo Nation Environmental Protection Agency, chapter houses, and Diné College to develop the WBP.

## Objective 2 – Improve Water Quality

*Effective watershed-based NPS restoration programs are implemented, using multiple funding sources, in identified priority watersheds at an average of three new watersheds per year.*

### Objective 2 Verification Milestones and Reports of Progress

- *Water quality conditions are improved in one priority watershed annually in 2019 through 2023 because of projects or improvements in land management funded or encouraged by New Mexico's NPS Management Program. Some actions leading to this water quality improvement likely will have been initiated before 2019.*

Several restoration project reaches were candidates for Nonpoint Success Story nomination in 2023. Initially San Antonio Creek was expected to be the best selection, but the temperature data was higher than anticipated. Additional monitoring is planned for 2024 to follow up on the extensive work completed in San Antonio Creek.

Redondo Creek showed a post-treatment improvement in turbidity sufficient to meet the water quality standards for its high-quality cold water aquatic life designated use and will have the turbidity impairment removed during the 2024-2026 *Section 303(d)/305(b)* listing cycle. Stream temperature data will continue to be collected and analyzed to determine if the temperature impairment will also be lifted in another cycle. The Redondo Creek Success Story was delivered to EPA in December 2023. NMED anticipates several additional Success Stories to come from the de-listings found in the 2024-2026 *Section 303(d)/305(b) Integrated Report*.

*Redondo Creek restored to its original channel and flowing through a Zuni Bowl filled to capacity with captured post-fire sediment.*





More information about NPS Success Stories, including New Mexico’s past NPS Success Stories, is available at [www.epa.gov/nps/success-stories-about-restoring-water-bodies-impaired-nonpoint-source-pollution](http://www.epa.gov/nps/success-stories-about-restoring-water-bodies-impaired-nonpoint-source-pollution).

Highlights of WPS effectiveness monitoring in 2023 are summarized in the following table.

*Table 5: Stream assessment units and notes summarizing WPS effectiveness monitoring in 2023. These streams were monitored to determine the effects of restoration projects on water quality. The water quality parameter that was monitored is stream temperature unless otherwise indicated.*

Assessment Unit	Notes
Bluewater Creek (Perennial prt R San Jose to Blue-water Rsvr)	This reach did not make the priority list for effectiveness monitoring in 2023. However, it will likely be included in 2024 to follow up after allowing time for post-project vegetative growth. Also to monitor the condition of the successful project upstream of Bluewater Reservoir.
Comanche Creek (Costilla Creek to headwaters)	Monitoring continued at this Rio Grande Cutthroat trout re-introduction area, at seven previously measured sites upstream and downstream of multiple projects, including the more recent deepening of pools which we hope will decrease temperatures. Data loggers recorded stream temperature from June 28th to November 7th 2023.
Holman Creek (Comanche Creek to headwaters)	Stream temperature loggers measured the effects of the Keyline design Wetlands project on two subwatersheds and just upstream of the confluence with Comanche Creek. Data loggers recorded stream temperature from June 28th to November 7th 2023. Emile Sawyer, a former SWQB employee now volunteering, has continued to collect shallow groundwater data on this project for the Wetlands Program.
Jaramillo Creek (East Fork Jemez to headwaters)	Stream temperature loggers continued to record data to follow up on potential temperature improvements after good vegetation growth, to follow up on trend of improvement identified in Success Story. The good news is that the planted willows are thriving and reports are that the fishing is greatly improved. Data loggers recorded stream temperature from June 29th to Sep 21st 2023.
La Jara Creek (East Fork Jemez to headwaters)	Post-implementation monitoring at three sites: above, middle, and below restoration reach. Data loggers recorded stream temperature from May 9th to October 18th 2023.
Rio de los Pinos (New Mexico reaches)	Continued post-implementation monitoring after more recent installation of rock structures in the state land. Data loggers recorded stream temperature from June 27th to November 6th 2023.
Redondo Creek (Sulphur Creek to VCNP bnd)	Continued post-implementation monitoring following refurbishing and expansion of exclosures. Data loggers recorded stream temperature just upstream of the confluence with Sulphur Creek from June 29th to November 2nd, 2023. Recent data has indicated that turbidity has improved enough to meet water quality standards, therefore, Redondo Creek was selected for the NPS Success Story in 2023.



Table 5: continued

Assessment Unit	Notes
<p>San Antonio Creek (East Fork Jemez to VCNP bnd)</p> <p>Willow Creek (Gilita Creek to headwaters)</p>	<p>Continued post-implementation stream temperature monitoring following construction of beaver dam analogs (BDAs). Data loggers recorded stream temperature at two sites (upstream, downstream) from May 10th to Sep 20th 2023. Recent turbidity data indicate strong potential for a Success Story.</p> <p>The Effectiveness Monitoring Coordinator and WPS staff continued baseline monitoring of stream temperature and metals, primarily Aluminum, prior to the completion of restoration activities. We deployed stream temperature loggers and collected metals samples upstream and downstream of the project area, and measured stream flow in the middle of the reach. Stream temperature loggers recorded stream temperatures from June 7th to Oct 5th. We collected metals and hardness samples at both locations during each of two visits (June and Oct), to the State Laboratory Division for analysis, including blanks for QA/QC</p>
<p>Rio de las Vacas</p>	<p>Post-implementation monitoring of Rio de las Vacas continued in 2023 after a brief hiatus in 2022. Staff observed cattle found their way inside several of the exclosures, and grazed much of the herbaceous layer of vegetation. Stream temperature loggers collected data from June 30th to Nov 2nd 2023.</p>

- *Begin implementation of watershed restoration projects described in WBPs or WBP alternatives to reduce NPS pollutant loads within two priority watersheds per year in 2019-2023.*

This milestone was met again in 2023. A Solicitation for Applications (SFA) for projects that implement WBPs, funded with Section 319 watershed project funds, was released on October 31, 2022. Three new projects were developed under this SFA (Projects 24-C, 24-D, and 24-E described in Table 2). Eighteen new River Stewardship Program (RSP) projects began in 2023 (see Table 3).

- *Report on the use of RPS to prioritize watershed implementation projects in the NPS Annual Report for 2020.*

WPS used RPS in the SFA that was conducted in 2020 and reported on this in the NPS Annual Report for 2020.

- *Water quality improvements are documented in each NPS Management Program Annual Report.*

Water quality improvements are documented in the sections **NPS Pollutant Load Reduction Reporting, Summaries of Section 319 Projects Completed in 2023**, and **Summaries of River Stewardship Program Projects Completed in 2023**, below.



- *The NMED Construction Programs Bureau provides a summary of activities related to use of the Clean Water SRF to protect or improve water quality for each NPS Management Program Annual Report.*

The Construction Programs Bureau prepared and submitted an annual report for state fiscal year 2023 (July 1, 2022 – June 30, 2023) to summarize funding and activities for the Clean Water State Revolving Fund (SRF). Included in the report are current non-point source projects in progress: Santa Fe River Stormwater Mitigation and City of Anthony South Arroyo Flood Control Project.

The Santa Fe River project addresses damage done in the 2018 floods, including bank damage allowing livestock and agricultural contamination to enter the Santa Fe River. The City of Anthony project addresses stormwater contamination entering the Rio Grande.

The Clean Water State Revolving Fund (CWSRF) FY 2024 Intended Use Plan (IUP) lists non-point source aligned projects. These projects are all eligible for funding and are in various stages of financial and technical review and consideration.

- Flora Vista Sanitary Sewer Collection
- City of Santa Fe Sewer Rehabilitation Project
- Bernalillo County Alameda Stormwater Outfall Improvements
- Santa County PFAS Modeling, Tracking and Analysis
- Bernalillo County Tijeras Creek Watershed
- City of Socorro 6th Street Stormwater Holding Pond

The Flora Vista Sanitary Sewer Collection System could help implement the Lower Animas River WBP. The WBP describes the problem of liquid waste treatment in the Flora Vista area and recommends a Flora Vista sewer extension among management measures to reduce nutrient and *E. coli* loading to the Animas River. The City of Santa Fe Sewer rehabilitation project will protect surface waters in the Santa Fe metropolitan area, including the Santa Fe River. The Bernalillo County Alameda Stormwater Outfall project will redesign the current outfall to better address micro-plastics contamination in the Rio Grande, and the adhesion of PCB's and PFAS to the micro-plastic contamination. The Santa Fe County PFAS project will analyze and model PFAS contamination found near the Santa Fe airport. While surface water is not currently thought to be impacted, the project will look at the possible impact on acequias down gradient from the airport. The Bernalillo County Tijeras Creek assesses the extent of impairment related to septic systems in the Carnuel area. Groundwater samples taken indicate artificial sweeteners, an emerging contaminant, linked to septic system contamination. The goal of the project is to support efforts to connect Carnuel residents to the regional sanitary sewer system thereby protecting Tijeras Creek. The City of Socorro 6th Street Stormwater Holding Pond project will address contamination proximate to the Rio Grande. The CWSRF Annual Report, Intended Use Plan, and Project Priority List are available at [www.env.nm.gov/funding-opportunities](http://www.env.nm.gov/funding-opportunities).



### Objective 3 – Protect Water Quality

*The quality of surface water resources is maintained through coordinated activities, permitting programs, and technical assistance provided to assist cooperating agencies and landowners with efforts to understand water quality and protect surface waters from NPS pollution.*

#### Objective 3 Verification Milestones and Reports of Progress

- *NMED will document procedures for SWQB to enforce regulations at 20.6.2 NMAC pertaining to refuse in a watercourse in 2019.*

In a previous reporting period (2020), NMED staff developed a draft Standard Operating Procedure (SOP) for responding to complaints related to surface water quality, including complaints of refuse disposed in watercourses. The SOP is rather complex, in part because relevant regulations are not limited to those at 20.6.2 NMAC. Also, several situations occur where state regulations not specific to surface water quality, or local regulations, apply and other parts of NMED or local agencies often should be consulted in developing appropriate responses to complaints. The SOP includes multiple processes that would be better addressed in separate dedicated SOPs. The effort to complete this SOP was not continued in 2023, however, it is anticipated that this effort may pick up again in the next reporting period.

In 2023, the SWQB developed a Civil Penalty Assessment Policy should civil penalties be required for enforcement actions issued pursuant to the New Mexico Water Quality Act. Should a violation of the 20.6.2 NMAC pertaining to refuse in a watercourse lead to enforcement actions that include issuing a civil penalty, this policy would be used to determine a fair and consistent penalty.

- *The NPS Annual Report will include a summary of actions taken to prevent and abate disposal of refuse in watercourses.*

On September 26, 2022 a tanker truck overturned resulting in the discharge of approximately 2,000 gallons of asphalt emulsion directly into Jaybird Canyon, a tributary of Meadow Creek and Sapillo Creek in the Gila National Forest. NMED was notified of the unauthorized discharge on October 4, 2022 and observed significant surface water impacts to Jaybird Canyon as a result of the discharge. WPS staff served as onsite response oversight and coordinated clean-up efforts with the responsible party, USFS, local citizen volunteers, local government representatives and communicated on-the-ground conditions and issues with NMED management to inform state level coordination and communications. NMED issued a final revised Notice of Violation (NOV) to the responsible party on July 31, 2023.

Additionally, SWQB staff received five reports of illegal dumping occurring near waterbodies including garbage, tires, construction debris, green waste, and a dead ram. SWQB staff coordinated with the Solid Waste Bureau and local county code enforcement officers to address these illegal dumping reports.

During the reporting period, NMED staff worked to develop a Request for Proposals (RFP)



to establish a statewide price agreement for Riparian, Aquatic, and Wetland Restoration Services. Included in this procurement are services to remove refuse from a watercourse using both manual and mechanical services, such as heavy equipment to clean up large loads of trash where manual labor is not enough to remove such materials. The RFP will be released in the next reporting period to establish the statewide price agreement to utilize these services to remove refuse from watercourses.

- *Within two years of any major wildfire occurring in the watershed of one or more streams with a coldwater or cool water aquatic life designated use, with severity outside the natural range of variability for the affected forest types, NMED will fund post-fire actions that reduce sedimentation and protect aquatic habitat, with support of Section 319 watershed project funds.*

New Mexico experienced its largest fires on record in 2022, with over 800,000 acres burned statewide. The largest fire in 2022 (and the largest in New Mexico’s recorded history) was the Hermit’s Peak – Calf Canyon Fire, at 341,424 acres. The project “Watershed Project Implementation for Upper Gallinas River and Porvenir Creek - Phase IV” (Project 22-F in Table 2 above) is in this area and had recently been approved when the fire started. Originally geared towards addressing the temperature impairment in the upper Gallinas River, NMED and the Hermit’s Peak Watershed Alliance amended and expanded the project to reduce post-fire sediment loading as the area serves as headwaters for the City of Las Vegas drinking water system.

In 2023, NMED funded a new project using Section 319 watershed project funds to address post-fire remediation for the Sapello River Watershed (Project 24-D in Table 2). This project, executed in June 2023, will implement post-fire mitigation activities including arresting upland erosion, rebuilding healthy soils, restoring stream geomorphology, repairing and improving roads, improving livestock management with virtual fencing, supporting strong floodplain ordinances and their enforcement, and conducting education and outreach about post-fire mitigation efforts.

In 2023, the River Stewardship Program funded a project intended to address post-fire issues within and near the Hermit’s Peak – Calf Canyon Fire burn scar (Project 24-Q in Table 3).

The second largest fire in 2022 (and the second largest in New Mexico’s recorded history) was the Black Fire, at 325,133 acres. The project “Restoration of Gila Trout and Riparian Habitat on Black Canyon Creek, Gila National Forest” (Project 22-G in Table 3) was in the design and permitting phase when the Black Fire started burning much of the upper watershed of Black Canyon. The 2022 summer monsoon delivered almost six times more water than average to the watershed. This spike in precipitation on the burn scar caused extreme debris flows that greatly impacted and changed the lower watershed, including almost all four miles of the project reach. This included the plugging and elimination of many meanders and subsequent creation of numerous cut-off channels, downcutting of the stream bed, and an increase in cut-banks. These changes rendered the majority of the original stream restoration prescriptions developed by Natural Channel Design, a contractor, no longer applicable. Project proponents walked the project reach post-fire and post-monsoon in September 2022 and provided photos and notes to the project engineer for redesign. Work sessions were conducted in November 2022, April



2023, June 2023, and October 2023 during which crews built structures using on-site down logs, root wads, rocks, and boulders. An agency meeting hosted by Trout Unlimited was held at Black Canyon to discuss Gila Trout Habitat status and opportunities to address post-fire habitat disturbances through future projects. Project proponents have scheduled an additional work session for spring of 2024.

- *A summary of CWA Section 401 certification activity will be reported annually in the NPS Management Program Annual Report.*

The purpose of CWA Section 401 is to ensure that federally issued permits and licenses, including CWA Section 404 permits authorized by the Corps for the discharge of dredged or fill material into waters of the United States, comply with State water quality standards. The Corps generally issues three kinds of permits in New Mexico: Standard Individual Permits (IPs), Nationwide Permits (NWPs), and Regional General Permits (RGPs). The most commonly used permit is the NWP which covers a wide range of activities that generally have no more than minimal individual and cumulative adverse environmental effects. SWQB ensures that these permits comply with State water quality standards by either granting certification with or without conditions, denying certification which prohibits the federal permit or license from being issued, or waiving certification which allows the permit or license to be issued without comment. The NWPs and RGPs must be re-issued every 5 years along with re-issued 401 certifications.

In 2023, SWQB staff reviewed forty-five projects covered by NWPs, sixteen projects covered by RGP 16-01 (utility line construction, maintenance, repair or removal), and one project covered by an Individual Permit. Among other things, SWQB's review evaluates the Best Management Practices that have been selected for each project and ensures that each project is consistent with the CWA Section 401 Water Quality Certification (WQC). More information about New Mexico's CWA Section 401 program is available at SWQB's website: [www.env.nm.gov/surface-water-quality/dredgeandfillactivities/](http://www.env.nm.gov/surface-water-quality/dredgeandfillactivities/).

- *A summary of activities related to the New Mexico Mining Act will be reported annually in the NPS Management Program Annual Report.*

A separate section below summarizes the Mining Act activities carried out under the NPS Management Program in 2023.

- *A summary of significant developments related to ONRWs will be provided in the NPS Management Program Annual Report.*

USFS often considers some aspect of a larger fire event to constitute an emergency (e.g. when human life or infrastructure are threatened) and initiates suppression activity. The Antidegradation Policy in New Mexico's water quality standards at 20.6.4.8 NMAC allows for short term water quality degradation in ONRWs "[w]here an emergency response action that may result in temporary and short-term degradation to an ONRW is necessary to mitigate an immediate threat to public health or safety..." In these situations, 20.6.4.8 NMAC requires "the discharger [to] notify the department of the emergency response action in writing within seven days of



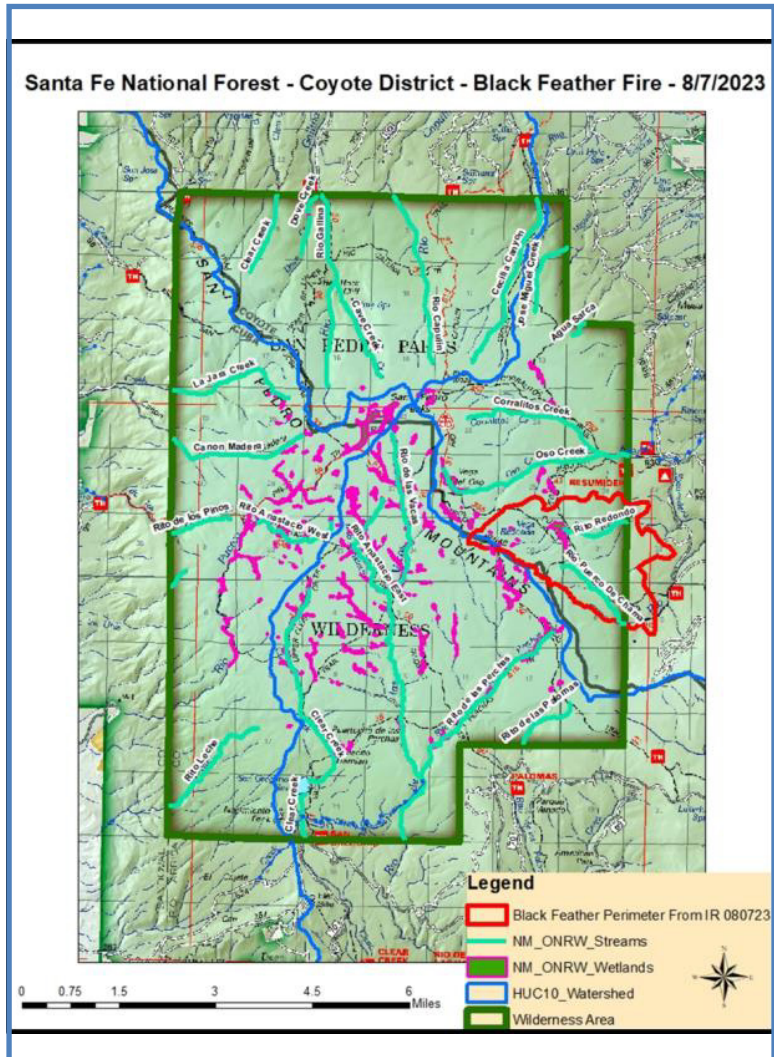


initiation of the action” and “within 30 days of initiation of the emergency response action, the discharger shall provide a summary of the action taken.”

On August 7, the Santa Fe National Forest provided a notification of actions planned to suppress the Black Feather Fire in the San Pedro Wilderness. The fire suppression tactics included aerial application of fire retardant and water in addition to fire line construction. The fire was in the general vicinity of multiple ONRW wetlands and headwaters of ONRW streams. The Santa Fe National Forest utilized Minimum Impact Suppression Tactics (MIST) approved for fire suppression activities in wilderness designated areas. Incident objectives included protecting water quality and ONRW streams and wetlands, riparian zones, springs, and seeps by limiting fire intensities and uncharacteristic fire effects that would negatively affect the ecosystem function, water quality, and downstream water users.

The 2022 Black Fire was the second largest fire in New Mexico’s history burning 325,136 acres of state, private, and Gila National Forest lands. ONRW headwaters of Black Canyon, Main Diamond and South Diamond Creeks experienced high severity burns that have and will continue to negatively impact populations of federally endangered Gila trout.

On September 22, 2023, staff from Surface Water Quality Bureau, US Forest Service (USFS), US Fish & Wildlife Service (USFW), New Mexico Department of Game & Fish (NMDGF), Bat Conservation International, and Trout Unlimited attended an onsite meeting at Black Canyon, a pre-fire restored Gila trout fishery, to assess the post-fire conditions, explore issues related to wildfire, watershed and habitat restoration needs, and discuss partnership opportunities future restoration projects at Black Canyon and other highly impacted areas of the Gila. These conversations included the increasing size, severity, and frequency of wildfire and compounding challenges of drought and climate change





in the Gila. NMDGF, USFS, and New Mexico Fish Wildlife Conservation Office collected eDNA and conducted visual surveys in the three streams to determine presence or absence of Gila trout. The same group of NGO and Agency staff will meet in 2024 to continue planning and coordination efforts.

*Gila Trout (Oncorhynchus gilae)*  
*NMDGF photo credit WW*

- *A summary of federal consistency review under NEPA will be reported annually in the NPS Management Program Annual Report.*

NMED's environmental review coordinator in the Office of the Secretary receives most requests for comments on National Environmental Policy Act (NEPA) documents, forwards them to the NMED bureaus, and applicable bureaus usually prepare comments. The coordinator compiles the comments and submits them to the requesting agency. Agencies that would like NMED to review a project or NEPA document should submit their documents via email to [env.review@state.nm.us](mailto:env.review@state.nm.us).

In federal fiscal year 2023, NMED reviewed over 50 projects and SWQB submitted comments 43 of the projects. Most of the SWQB comments were standard statements informing project proponents of the need to comply with Sections 402 and 404 of the Clean Water Act, and providing more background to assist them in doing so.

- *A summary of activities related to forest restoration will be reported annually in the NPS Management Program Annual Report.*

NMED continued to participate in the state Forest and Watershed Restoration Act (FAWRA) program managed by New Mexico State Forestry. Two new projects that will protect water quality for downstream users were selected for FY 2023: Taos Valley Watershed Association project to protect the Rio Hondo, Rio Lucero, Rio Pueblo de Taos, Rio Fernando de Taos, and Rio Grande del Rancho and the Mimbres to Signal Peak project that will protect the headwaters of the Mimbres Valley. More information about FAWRA, including a list of projects selected for FY 2023 funding, is available at [www.emnrd.nm.gov/sfd/forest-and-watershed-restoration-act-fawra](http://www.emnrd.nm.gov/sfd/forest-and-watershed-restoration-act-fawra). Additional effort by the Forestry Division in the area of forest restoration is summarized below in the section, **Additional Management Measures Implemented by Non-NMED Agencies**.

- *The biennial State of New Mexico CWA §303(d)/§305(b) Integrated Report and List will provide summaries of water quality survey activity, analysis, and conclusions in 2020 and 2022. The NPS Annual Report for these years will provide the percentage of assessed stream miles or watersheds designated as impaired, for comparison with previous years.*



This milestone was completed in the previous reporting cycles. The 2022-2024 *Integrated Report* was completed during the last reporting period. Appendix A of the *Integrated Report* is the combined Sections 303(d) and 305(b) list and was approved by the New Mexico Water Quality Control Commission (WQCC) on March 16, 2022 and by EPA on April 26, 2022.

Of 8,657 miles of streams with assessment status provided in the 2020-2022 *Integrated Report*, 4,525 (52%) were classified as impaired (Category 4 and 5 waters). Of 8,664 miles of streams with assessment status provided in the 2022-2024 *Integrated Report*, 4,801 (55%) are classified as impaired.

Current and previous versions of the *Integrated Report* are available at [www.env.nm.gov/surface-water-quality/303d-305b/](http://www.env.nm.gov/surface-water-quality/303d-305b/).

- *A summary of activities and accomplishments under the Wetlands Program will be provided in each NPS Management Program Annual Report.*

This summary is within the Wetlands Program section below.

- *At least one project outlined in a WAP supported with Section 319 watershed project funds will begin by 2021.*

This milestone was met. One new project funded with Section 319 watershed project funds in 2023 (Project 24-C in Table 2) will implement projects outlined in both the Moreno Valley Wetlands Action Plan and the Cimarron Watershed-Based Plan.

- *The NMED Construction Programs Bureau will provide a summary of activities related to the use of the Clean Water SRF to protect or improve water quality for each NPS Management Program Annual Report.*

This information is reported above under **Objective 2 (Improve Water Quality)**.

#### **Objective 4 – Share Information on Surface Water Quality**

*General public awareness of NPS pollution and water quality is increased and maintained through an effective education and outreach program using strategically selected educational resources available throughout the State.*

#### **Objective 4 Verification Milestones and Reports of Progress**

- *SWQB will organize a data sharing network to solicit external data, meeting data quality standards, that will be assessed in the State of New Mexico CWA §303(d)/§305(b) Integrated Report and List for 2022-2024. The data collected by non-NMED partners will be submitted in 2021.*

This milestone was met. Data Sharing Network resources such as presentations and guidance documents are available, at <https://cloud.env.nm.gov/water/?r=7549&k=98cfe2b2a2>.



Ten external (non-NMED) organizations submitted data for the 2022-2024 *Integrated Report*. Seven of these had participated in the Data Sharing Network. Eleven submittals were received for the 2024-2026 *Integrated Report*.

- *Watershed groups will address water quality problems as indicated by verification items listed above [related to WBP completion and implementation], accurately drawing on information resources for which the SWQB is responsible.*

Milestone was met. The Wolf Creek WBP update completed in 2023 accurately summarized the listing status, TMDLs, and water quality data available for the covered watersheds.

- *The SWQB email list, used for various surface water quality informational purposes (including distribution of *Clearing the Waters*), is maintained above 2,000.*

Milestone not met. At the end of the reporting period the list had 1,978 addresses. Although this email list still falls just short of the goal of 2,000 addresses, it has increased each year since 2014. People can add themselves to the list by clicking a button at the bottom of the SWQB's home web page, which links to [https://public.govdelivery.com/accounts/NMED/subscriber/new?topic\\_id=NMED\\_4](https://public.govdelivery.com/accounts/NMED/subscriber/new?topic_id=NMED_4).

- *Clearing the Waters will be published quarterly with an email circulation of at least 2,000.*

*Clearing the Waters* ([www.env.nm.gov/surface-water-quality/newsletters](http://www.env.nm.gov/surface-water-quality/newsletters)) was published April 5, 2023 and September 28, 2023. The April issue was dedicated to the Clean Water Act 50th Anniversary Special Edition. The main theme of the September issue focused on the River Stewardship Program.

- *Educational opportunities provided for the public and private sector, and completed small publication projects, will be reported in the NPS Management Program Annual Report.*



*STEM Showdown event. WPS staff discuss macroinvertebrates with high school students at Storrie Lake State Park.*

WPS staff members attended a “STEM Showdown” events on September 13, 2023 for high school students, in the field at Storrie Lake State Park, to teach students about watersheds, macroinvertebrates, water quality, and discuss their Science, Technology, Engineering, and Mathematics (STEM) career paths and careers like theirs at NMED for watershed protection. The goal of the STEM Showdown is to increase



interest in STEM fields of study or careers in northern New Mexico middle and high school students, and to demonstrate other New Mexicans in STEM fields.

SWQB sponsored and helped plan the June 21-22, 2023 Animas and San Juan Watersheds Conference that was hosted by the New Mexico Water Resources Research Institute. This year's conference was held virtually and in person at the San Juan College Henderson Fine Arts Center in Farmington, NM with the theme of "Less Water: Planning, Adapting, and Resiliency." The conference included poster presentations, oral presentations, and a tour of the Lower Animas River Watershed-Based Plan implementation sites near Flora Vista, NM. The full conference program and recorded presentations are available online (<https://web.cvent.com/event/687bb972-57ee-47b9-9c0e-f7157ba07e92/websitePage:9c099174-df12-4d9d-ad04-114c5d3777bb>). Funding for the conference was provided by EPA via a grant awarded under the Water Infrastructure Improvements for the Nation (WIIN) Act following the 2015 Gold King Mine Spill.

As part of the "On-The-Ground Improvement Projects for the Upper Gallinas River and Porvenir Creek Phase IV" (Project 22-F in Table 2 above), the Hermit's Peak Watershed Alliance completed Post-Fire Landowner Guides available on their website (<https://hermitspeakwatersheds.org/>) and distributed a video about the Gallinas Floodplain Reconnection Project completed in October 2022 at the City of Las Vegas property in the Village of Gallinas (<https://hermitspeakwatersheds.org/educational-videos/>).

## Objective 5 – Protect Ground Water Quality

*The quality of ground water resources is maintained through the water fair and water-quality outreach program along with permitting and compliance assistance for large capacity septic tank leachfields with efforts to understand water quality and protect ground water from NPS pollution.*

### Objective 5 Verification Milestones and Reports of Progress

- *The GWQB will report to EPA-Region 6 in the Semi-Annual Report summarizing GWQB activities conducted under the CWA Section 319 grant for the New Mexico Water Fair and Water Quality Outreach Program and Permitting and Compliance for Large-capacity Septic Tank Leachfields.*

The Ground Water Quality Bureau (GWQB) works to protect ground water quality from NPS pollution attributed to large capacity septic tank and leachfield systems (septic systems) and septage disposal facilities, sludge disposal facilities, and land farms (surface disposal facilities). Technical personnel in GWQB review state Discharge Permit applications, prepare and issue Discharge Permits, perform compliance assistance activities for permittees, and enforce Discharge Permit requirements for septic systems and surface disposal facilities. From October 1, 2022 through September, 30, 2023, GWQB issued eighteen New, Renewal, or Renewal and Modification Discharge Permits.

Residents of New Mexico primarily rely on ground water for drinking water, and in some lo-



cations ground water is the only available source of drinking water. Since many communities are concentrated in river valleys where ground water is shallow, their drinking water supplies are susceptible to contamination from NPS pollution. To identify possible NPS water quality problems in rural New Mexico communities, GWQB conducts free testing of domestic wells (“Water Fairs”) throughout the state. In 2023, GWQB conducted six water fairs, receiving approximately 48 water samples. The Water Fairs were conducted in Grant, Eddy, Guadalupe, Curry, Torrance, and Santa Fe Counties. SWQB staff participated in the Grant County Water Fair during the reporting period.

## **Objective 6 – Cooperate with other Agencies on Water Quality Protection and Improvement**

*With assistance provided by the WPS and other SWQB programs, federal and State agencies in New Mexico actively manage a variety of natural resources to protect and restore water quality.*

### **Objective 6 Verification Milestones and Reports of Progress**

- *A Memorandum of Agreement (MOA) to allow NMED to fund on-the-ground restoration projects on United States Forest Service (USFS) managed land will be drafted and under review by NMED and USFS by December 2019. The MOA will be signed and effective by December 2020.*

This milestone was met. The New Mexico Watershed-Based Plan Implementation Agreement was approved on December 9, 2021. No projects have been developed or funded under the agreement in 2023. The agreement allows NMED to fund USFS to implement WBPs. USFS continued to support several WBP implementation projects in 2023 carried out by other organizations.

- *The Memorandum of Understanding (MOU) between NMED and the Southwestern Region of the USFS, scheduled to expire in 2022, will be renewed.*

In May 2023, NMED and the USFS Southwestern Regional Office renewed MOU #23-667-2090-27688 which is now set to expire May 2, 2028. The MOU recognizes that both entities, the USFS and NMED, are responsible for protection of water quality in New Mexico and further outlines actions for each agency to achieve this goal together.

- *The MOU between NMED and the BLM New Mexico State Office, which does not have a termination date, will be reviewed and revised if appropriate, and implemented. The resulting activities will be reported in the NPS Annual Report.*

The BLM submitted summaries of activities related to water quality management and nonpoint source pollution control in the section **Additional Management Practices by Non-NMED Agencies** below.

- *The grant from the DOE that currently supports the work of the DOE Oversight Bureau will be re-issued in 2023.*



The Department of Energy (DOE) Oversight Bureau at NMED oversees multi-year federal grants that support surface water monitoring at and near Los Alamos National Laboratory (LANL), Sandia National Laboratory (SNL), and the Waste Isolation Pilot Plant (WIPP). The five-year grant that supports monitoring at LANL and SNL was awarded in October 2023. The grant that supports monitoring at WIPP is currently in year three of five years.

- *The summary of activities and accomplishments under the Wetlands Program provided in each NPS Management Program Annual Report will include a description of the Wetlands Roundtable meetings.*

See the **Wetlands Program** section below for a description of the Wetlands Roundtable meetings.

- *For each year starting in 2019 and through 2023, NRCS will report that agricultural BMPs funded under NWQI or other conservation programs have been implemented during the calendar year and will provide sufficient details to enable WPS staff to estimate pollutant load reductions for water quality impairments identified by the State.*

In 2023, NRCS focused their efforts on the Emergency Watershed Protection (EWP) Program to support the recovery of New Mexico landscapes devastated by the catastrophic fire season of 2022. A description of the projects NRCS focused on for the EWP Program is included in the **Additional Management Practices by Non-NMED Agencies** below.

In 2023, NRCS did not list any watershed implementation projects in New Mexico funded through the National Water Quality Initiative (NWQI). NRCS listed two watersheds in New Mexico for planning purposes in Federal Fiscal Year 2023: Picacho Drain-Rio Grande (HUC 130301020608) and Vado Arroyo-Rio Grande (HUC 130301020803). The watersheds listed for planning will begin watershed assessments and planning efforts to prepare to implement projects in the watershed to address impairments through voluntary conservation efforts.

WPS staff attended the New Mexico Technical Committee Meeting in May 2023 where NRCS staff provided overviews of their programs, including the Emergency Watershed Protection (EWP) Program, the Environmental Quality Incentives Program (EQIP), and the Conservation Stewardship Program (CSP) among others. Additional coordination with NRCS staff is necessary to collect information sufficient to include in estimated pollutant load reductions for calendar year 2023, due to EPA March 2024.

- *The NPS Annual Reports for 2019 through 2023 will include information about the Farm Service Agency's (FSA's) riparian buffer sub-program within the Conservation Reserve Program (CRP) and report on any efforts to coordinate on future projects.*

In December 2021 FSA clarified that the “sub-program” is actually a Conservation Practice, CP-22, Riparian Buffers, under Continuous CRP. A fact sheet for CP-22 is available at [www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/FactSheets/2015/CRPProgramsandInitiatives/Practice\\_CP22\\_Riparian\\_Buffer.pdf](http://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/FactSheets/2015/CRPProgramsandInitiatives/Practice_CP22_Riparian_Buffer.pdf). CP-22 entails payment to participants for not harvesting or grazing within the practice area (among other requirements), and payments cover-



ing part of the eligible costs of establishing the practice, such as installation of fencing and alternative watering facilities. No further activities were coordinated in the WPS during the reporting period.

- *SWQB attendance at SWCD meetings will increase, and each year starting in 2019 the NPS Annual Report will include at least one profile of a project intended to protect or improve water quality implemented by an SWCD or SWCD clients.*

SWQB attended eight SWCD board meetings, with four different SWCDs, in 2023. This compares with ten meetings with five SWCDs in 2022, nine meetings with two SWCDs in 2021, and six meetings of three SWCDs in 2020. Four of the five SWCDs with which SWQB staff attended meetings in 2023 are among the eight whose jurisdictions, because they contain most of New Mexico’s assessed stream miles, are identified as priorities in the NPS Management Plan.

- *By 2022, NMED will fund at least one competitively awarded water quality or aquatic habitat improvement project with an SWCD with which NMED has not had an agreement within the previous ten years.*

This milestone was met. In 2023, the River Stewardship Program awarded a water quality improvement project to the San Francisco Soil and Water Conservation District (SFSWCD) to implement stream restoration projects on Willow Creek in a private lands reach to complete nearly all implementation work proposed in the Willow Creek Watershed-Based Planning area.

- *Statewide planning efforts related to water resources will give serious consideration to water quality protection and restoration and convey accurate summaries of information generated by SWQB programs.*

In 2023, Watershed Protection Section staff contributed to reviews of the 50-Year Water Plan that the New Mexico Interstate Stream Commission developed to coordinate water planning for the future for New Mexico. In addition to reviewing the plan, staff participated in workshops to solicit feedback for the 50-Year Water Plan at the Water Dialogue conference in January 2023 as well as other workshops hosted by the Interstate Stream Commission to focus on development of the 50-Year Water Plan. The plan is currently under review at the Governor’s Office and expected to be finalized in 2024.

Watershed Protection Section staff also participated in post-fire planning efforts coordinated by the Federal Emergency Management Agency (FEMA) and the New Mexico Department of Homeland Security and Emergency Management (NMDHSEM) for the 2022 New Mexico Fires including the Hermit’s Peak – Calf Canyon Fire, Black Fire, Cerro Pelado Fire, and McBride Fire. This planning coordination effort will result in long-term support for post-fire mitigation projects to assist with impacts of debris flows and post-fire recovery of burned watersheds. Watershed Protection Section staff ensured considerations for protection of water quality and long-term funding opportunities, such as Clean Water Act Section 319 funds, were part of the conversations for recovery, future projects and planning efforts.





- *The NPS Management Program Annual Report will be submitted to EPA by January 31 and will be made available to the public by early February, each year.*

The 2022 NPS Annual Report was submitted to EPA on January 31, 2023. It is available to the public at <https://www.env.nm.gov/surface-water-quality/nps-annual-reports/>.

- *A revised plan describing the New Mexico NPS Management Program will be submitted by the Governor of New Mexico, or by the Governor’s designee, to the EPA Regional Administrator, in 2024. The plan will reflect input and review by implementing agencies and organizations.*

In 2022, NMED developed a schedule and a plan to involve the public for revising the NPS Management Program Plan. NMED requested and was granted time on the agenda of the October 11, 2022 WQCC meeting to provide a presentation on the revision process. NMED conducted an early input workshop for the NPS plan revision on January 18, 2023 in partnership with the New Mexico Water Resources Research Institute (WRRI), a division of New Mexico State University (NMSU). WRRI helped NMED to facilitate and host the workshop, as well as develop a report to support the NPS Management Program Plan revision. The plan revision occurred during the reporting period and into part of 2024. Here is the schedule that was presented to WQCC with some modified dates in parentheses due to delays in drafting and review:



- Virtual workshop for early public and inter-agency input to plan development: December 2022 [subsequently scheduled for January 18, 2023]
- Drafting: January 2023 – June 2023
- EPA Technical Review: June 2023 – August 2023
- Public Comment Period: October 2023 – December 2023 (now early 2024)
- WQCC Submittal, Review & Approval: January 2024 – March 2024 (now Spring 2024)
- EPA Submittal: April 2024 (now likely Summer or Fall 2024)
- EPA Approval: June 2024 (now likely Summer or Fall 2024)

## NPS Pollutant Load Reduction Reporting

Section 319(h)(11) of the Clean Water Act requires each state to report to EPA on an annual basis “reductions in nonpoint source pollutant loading,” as a component of the Nonpoint Source Management Program Annual Report. EPA and NMED use GRTS to implement this reporting requirement. Pollutant load reduction estimates reported by NMED for January 1, 2023 through December 31, 2023 will be available after March 31, 2024. The table in the link (<https://tinyurl.com/NM-2022-Load-Reductions>) shows the load reductions for



## Summaries of Section 319 Projects Completed in 2023

### North Ponil Restoration Project (19-I)

Project Cost \$181,366 (Section 319 funds) and \$300,994 (matching funds and in-kind)

Project was implemented by the Cimarron Watershed Alliance (CWA) on portions of North Ponil Creek that flow through Philmont Scout Ranch in Colfax County, NM. The Outlet of North Ponil Creek (assessment unit ID NM-2306.A\_110, South Ponil Creek to Seally Canyon) is impaired due to nutrients, *E. coli*, temperature, and turbidity. The goals of the project were to reduce turbidity and stream temperature. The project upgraded eight low water crossings (LWCs). Unimproved LWCs frequently become overly wide, deep and muddy due to erosion caused by passing vehicles. Stabilization of LWCs included adding cobble and boulder fill material to the stream at the crossing to restore natural channel dimensions and to harden the road surface. Rolling dips were built in the roadway on either side of the LWC to further reduce sediment levels entering the creek. CWA also worked with Philmont Scout Ranch to install one hundred instream structures, including 71 one-rock-dams, 14 baffles, 10 wicker-weirs, and seven flow splitters to help stabilize the stream channel and

banks, reduce channel width, establish a low flow channel, reduce width-to-depth ratios, reduce potential down-cutting, capture in-stream sediment, and raise the channel bed. This effort also supports aquatic habitat and fish passage by improving low flow depths. The project successfully reduced the bankfull widths at the low water crossings and helped reduce stream turbidity. Monitoring efforts did not identify a reduction in stream temperature. Additional restoration work would further improve stream temperature.



*Photo above, Low water crossing 6 before treatment, June 2020.*

*Photo below, Low water crossing 6 after treatment, May 2022.*

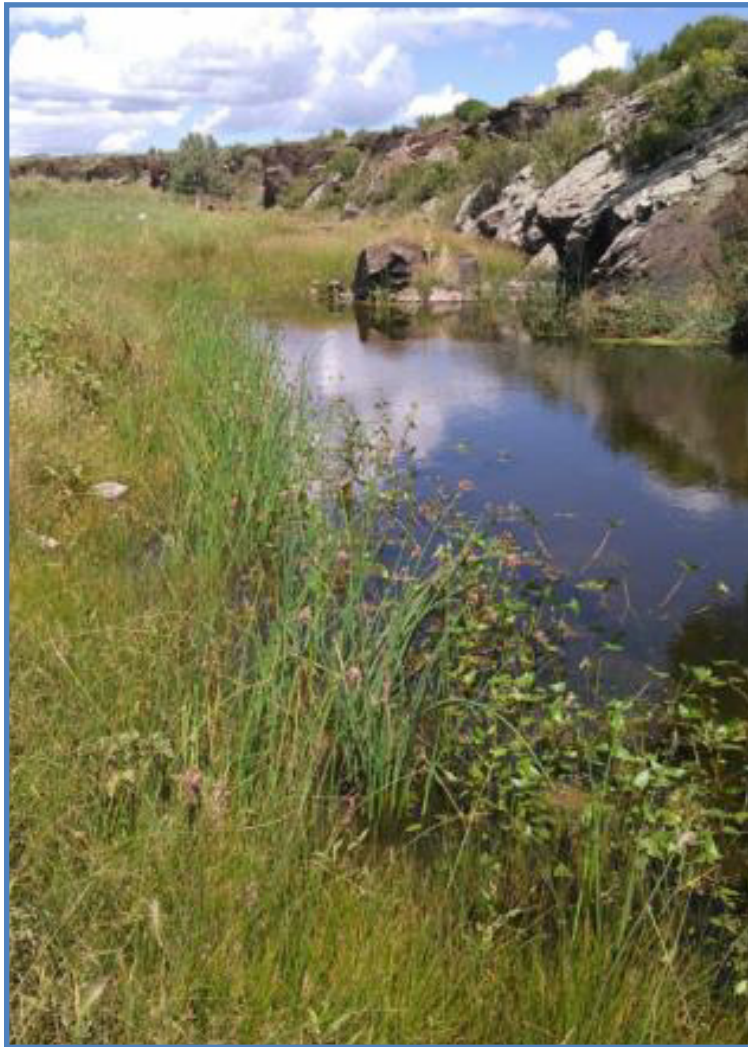


## Wolf Creek Update to the Watershed-Based Plan for the Mora River – Upper Canadian Plateau (20-E)

**Project cost: \$75,574 (Section 319 funds), \$94,591 (matching funds and in-kind)**

The goal of this project was to develop a watershed-based plan with stakeholder involvement for the Wolf Creek watershed in Mora County, New Mexico. Currently, Wolf Creek does not support its designated aquatic life use because of flow regime modification. The project area consisted of the entire drainage basin of Wolf Creek, including all tributaries, downstream to its confluence with the Mora River. The watershed area is approximately 121 square miles from its headwaters near Laguna Salada downstream to its confluence with the Mora River at Valmora, NM.

The condition of the Wolf Creek Watershed was assessed during this project to establish baseline conditions, confirm low flow/flow impairment, identify watershed-wide sources of impairment to guide the development of management plans and restoration strategies.



*Freshwater emergent wetland of Wolf Creek.*

The project assembled existing watershed data including land use, land cover, topography, hydrology, NWI, soils, past studies, and past watershed related enhancement activities. In addition to electronic data, water quality data was collected. Flow measurements and multiparameter sonde data were collected during this project to determine if any flow could be measured.

The social assessment looked at landowner/manager willingness to cooperate on future projects. Several meetings were held with the Fort Union Ranch/Union Land and Cattle Company, the single most important stakeholder in the Wolf Creek Watershed.

The Wolf Creek Update to the Watershed-Based Plan for the Mora River – Upper Canadian Plateau was approved by the EPA on May 18, 2023. Management and Restoration Measures (MRMs) were developed with the help of HPWA staff, Bill Zeedyk, Fort Union Ranch staff, and other stakeholders. These MRMs will be for future projects to help improve land management and restore healthy watershed conditions. MRMs that result in substantial gains to flow or wetted area in Wolf Creek Watershed or tackle multiple watershed improvement goals simultaneously will be considered high priority for future projects.



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## Reducing Fecal Waste in the Rio Fernando de Taos (20-O)

**Project cost: \$47,891 (Section 319 funds) and \$57,739 (matching funds and in-kind)**

Amigos Bravos in collaboration with the Rio Fernando de Taos Revitalization Collaborative successfully implemented the project titled Reducing Fecal Waste in the Rio Fernando de Taos. The Rio Fernando de Taos watershed is a sub-watershed of the Upper Rio Grande Watershed and covers approximately 71.7 square miles, ranging in elevation from just below 11,000 feet at the headwaters in the Sangre de Cristo Mountains to about 7,100 feet at its confluence with the Rio Pueblo de Taos in the agricultural community of Ranchitos near the Town of Taos. The Rio Fernando de Taos (Tienditas Creek to headwaters) is listed as impaired due to *E. Coli*, specific conductance, temperature, and turbidity. The goal of this project was to reduce *E. coli* loading in the Rio Fernando de Taos. To accomplish this goal Amigos Bravos successfully installed a portable toilet near Fred Baca Park (originally planned to be installed near the Taos Men’s Shelter but a portable toilet already got installed there), created a backyard waste management guide and hosted a workshop, installed pet waste disposal trash cans at local parks and trails, and to performed community wide education to decrease pet waste in the river which included newspapers print advertisements, radio announcements, and pet waste signs.



*Photo of pet waste stand along trail.*



## Post Fire Rehabilitation of the Bear Creek Watershed – Part 2 (20-P)

### Project Cost \$152,699 (Section 319 funds) and \$60,987 (matching funds and in-kind)

This project addressed post-fire flooding in the Bear Creek watershed in the Gila National Forest near Silver City. The watershed was burned severely in 2014 during the Signal Fire and again in 2020 during the Tadpole Fire. Stormwater runoff from both fire impacted drainages converge at Cherry Creek, a small, intermittent tributary. Cherry Creek contains a large, low-gradient wetland that receives stormwater flows from the surrounding highlands. The wetland serves to attenuate both the volume and speed of the rainwater, allowing it to infiltrate the soil, providing water storage and aquifer recharge in the drier months. This wetland began to incise and dewater after the 2014 Signal Fire and the 2020 Tadpole Fire accelerated the degradation. This project sought to repair the damage to the wetland preventing future water quality deterioration and returning functionality to the Cherry Creek.

Management practices were selected to both stabilize and raise the channel bed elevation while also returning the channel in several locations to the original sinuous stream form. In November 2021, NMED's contractor, Keystone Restoration Ecology, installed 4 rock cross-vanes, 6 large one-rock dams, plugged 6 cut-off channels to restore flow to abandoned channels, dug two pools to create Zuni bowls and filled eroded channels and headcuts with approximately 1700 cubic yards of fill. The Gila National Forest contributed several hundred native plants which were installed by area school groups in the spring of 2022.



*Photo above, Cherry Creek in flood, August 2022. The constructed Zuni bowls and step-down pools were built to address a 5-foot headcut in this location.*

The monsoon season of 2022 was one of the wettest in recent decades and the nearby Signal Peak SNOTEL station

recorded 27.9" of precipitation between June and October 2022. That stormwater converged at Cherry Creek and caused many of the newly-constructed structures to fail. All but one of the cross-vanes failed and all six of the one-rock dams also failed. In November 2022, Keystone Restoration Ecology returned to the project area to rebuild the majority of the rock structures and the Gila National Forest replanted the project area in April 2023. The project expended \$152,699 in federal funds and sourced \$60,987 in matching funds from donated materials, and volunteer hours.



## Temperature Reduction and Erosion Reduction in Lower Cow Creek – Phase II (21-D)

**Project Cost \$206,859 (Section 319 funds) and \$149,115 (matching funds and in-kind)**

The Lower Cow Creek phase II project is one of three 319 funded projects that seek to address excess stream temperature and sediment loading along the lower portion of Cow Creek approximately 30 miles southeast of Santa Fe. Cow Creek joins the flow of the Pecos River just below the project area to begin the long journey out of the Sangre de Cristo mountains, cutting through eastern New Mexico, to eventually join the Rio Grande near Del Rio, Texas.

Cow Creek phase II included 0.5 miles of privately accessed stream and the adjacent riparian buffer. Land uses in this area are primarily small-scale agricultural with small farms and fields obtaining surface water from Cow Creek and feeding numerous acequias. The larger assessment unit of Lower Cow Creek is 15.5 miles and includes stream impairments for temperature and benthic macroinvertebrates. The Upper Pecos Watershed Association (UPWA) worked with their subcontractors Pathfinder Environmental and Keystone Restoration Ecology to engage landowners in the restoration process and identify several BMPs that would reduce stream temperature, and stabilize eroding banks. Construction and planting were completed in October 2022, and eleven j-hook vanes, five log vanes, two one-rock-dams, five bankfull benches and realigned the channel in one 120' section. The project also transplanted numerous willow clumps and installed 75 cottonwood trees.

Stream temperature data collection included only pre-monitoring data since the project was constructed late in the contract term and high flows in the spring of 2023 prevented early season deployment of dataloggers. Still, phase I which lies just upstream and utilized similar restoration techniques, showed

average decrease of 0.609 degrees Celsius between the furthest upstream and furthest downstream temperature dataloggers for the 100 hottest stream temperature data points, so we anticipate seeing similar improvement for phase II. Before and after longitudinal profile data show that the project successfully raised the incised stream and created deeper pools, both of which should reduce overall stream temperatures through the project reach and further downstream. All three phases are contiguous and should show additive improvements in stream temperature and bank erosion as the vegetation matures.



*Photo above, Newly constructed bankfull bench planted with cottonwoods and willow. Bench allows for overbank flooding, reducing stream velocity and encourage sediment deposition.*



## Post Fire Rehabilitation of the Rio en Medio – Part 2 (21-E)

### Project Cost \$172,552.01 (Section 319 funds) and \$83,779.87 (matching funds and in-kind)

This project addressed post-fire erosion in the Rio en Medio watershed following the Medio Fire. The Medio Fire began on August 17, 2020 on the Española Ranger District-Santa Fe National Forest in the Sangre de Cristo Mountains above the Villages of Tesuque, Rio en Medio and Chupadero. The fire was started by a natural ignition and burned a total of 4,010 acres. The fire burned between 7,200 and 9,500 feet on steep rocky soils. The fire burned in a mosaic of severity with approximately 600 acres of high severity and approximately 550 acres were burned at moderate severity.

Cooperators included Keystone Restoration Ecology (KRE) as the contractor, volunteers from the Albuquerque Wildlife Federation and New Mexico Volunteers for the Outdoors to assist with hand-built erosion control structures, the U.S. Forest Service-Santa Fe National Forest, and Santa Fe County. The goal of this project is to reduce the effects of post-fire erosion on the Rio en Medio. The project was designed using commonly used “natural channel design” methods including log vanes (4 total), media luna (3 total), Zuni bowl (1 total), excavator plug (2 total), J-hook (8 total), meander repair (1 total), log mattress (1 total), plug and pond (2 total), rock arch dam (5 total), one rock dam (7 total), rock rundown (1 total), and baffle (1 total). The focus of these structures is to promote flooding onto floodplains and alluvial fans and to prevent degradation of channels and head-cutting upstream (grade stabilization) which are common post-fire impacts. Pools would be created below the one rock dams and J hook vanes to provide habitat for fish.



*Photo above, One rock dam Zuni bowl, post flooding Fall 2022*

The summer of 2022 featured an above average number of short duration, high-intensity rainfall events that contributed to several major flood events including a flood event that was estimated to exceed the 50-year flood event. Many structures in the lower basin area were completely buried in over 5 feet of sediment. In the upper basin, all of the in-stream structures held except two structures which washed away. Overall, Keystone Restoration Ecology estimated that the structures captured around 313 yards of sediment upstream from the structures and on the floodplains adjacent to the structures. Many lessons were learned from this project including the need to plan for large post-fire flood events, selecting boulders for large flood events, and anticipating the time to coordinate, create, and restore access routes.



## Bluewater Creek Riparian Improvement Project (21-G)

**Project cost: \$189,094 (Section 319 funds) and \$634,158 (matching funds and in-kind)**

The Rio Puerco Watershed-Based Plan, and 2020-2022 State of New Mexico Clean Water Act Section 303(d)/Section 305(b) Integrated Report list Bluewater Creek as impaired for Nutrients and temperature. One contributing cause of this is that Bluewater Creek, in this reach, lacks sinuosity. The current almost straight channel of the creek is not the original. After a major flood event in the early part of the last century, the channel was excavated to its present location. The channel has continued to degrade and deepen with each succeeding year when irrigation water is released from the reservoir. Another contributing cause of nutrient impairment is the sediment runoff during storm-water events.

The Bluewater Creek Improvement Project is aiming to increase riparian canopy cover and thus reducing solar loading on the stream, increasing wetland vegetation, reduce channel incision, and increase sinuosity in a 0.75-mile reach of Bluewater Creek. Initiated by Russ Nielson, ranch manager and general partner of the Nielson Family Partnership, as a continuation of Reynold Draw-Bluewater Creek Riparian Conservation Project from 2019-2020, in which 200 narrow leaf cottonwoods and 200 Gooding's willows were planted along with, erosion control and road work adjacent to the creek.

The project design was completed in 2021 and project construction and planting were completed in 2022. The initial design called for 35 one rock dams, a rock sill, five baffles, and three beaver dam analogues. Field observations and constraints led to several changes in the design. Six one rock dams were moved from the main channel to overbank locations to ensure the channel avulsion doesn't occur and carve a new channel through the bankfull bench. In addition, two baffles were turned into one rock dams when field evidence of underlying rocks in the banks showed that increasing meandering was not achievable in those specific reaches. The furthest downstream beaver dam analogue was also turned into a one rock dam where a rock structure was determined to be more reliable and appropriate than a bioengineered BDA. Drip irrigation was also implemented for 54 the surviving cotton woods from the previous project. Geomorphic analysis of three repeat cross sections shows the project is trending towards reaching the goal of increasing the bankfull width, reducing channel incision, and increasing sinuosity. The data also showed a slight increase in canopy after the project was completed, with hopes of further increase in wetland and riparian vegetation cover over time as the in-stream structures slow the waters flow during the monsoon seasons.



*Photo right, One rock dam being built in Bluewater Creek.*





## Early Public Input Workshop for the NPS Management Plan Revision (21-I)

**Project cost: \$30,656 (Section 319 funds)**

The early input workshop for New Mexico's 2024 Nonpoint Source Management Plan revision was held remotely on January 18, 2023. The workshop was facilitated by the New Mexico Water Resources Research Institute and was attended by 90 people. The workshop agenda included presentations on New Mexico's Climate Plan, Climate Resiliency and Environmental Justice



and Equity which are important topic areas that will be included in the 2024 NPS Management Plan. The NPS Management Program is funded under Clean Water Section 319 and is included in the Justice40 initiative which has made it a goal of the Federal Government to ensure that at least 40 percent of the overall benefits of Federal Investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution. The workshop also included multiple breakout groups to discuss and receive input on improving surface water quality, protecting surface and ground water, engaging communities and improving environmental justice, organizational capacity building for watershed groups, technical capacity building for watershed groups, forest health, Outstanding National Resource Waters, cooperation among agencies and tribes, and building climate resiliency. The workshop also provided participants with the opportunity to rank NPS Management objectives.

On the topic of capacity building for watershed groups, the workshop found that local watershed groups across the state need additional funding to support capacity building and maintain staff. Another discussed struggle is diversity and how to engage everyone who is connected to river health, but may lack the time to get involved. A provided strategy to overcome these obstacles included forming an overlying organization or regional working groups that could help secure stable funding. Disadvantaged communities would also benefit from capacity building. Many organizations, nonprofits, and local governments are limited in their capacity to support disadvantaged communities. It was discussed that the NPS program should prioritize funding restoration projects that benefit disadvantaged communities, and the NPS program should reduce the match requirement to receive federal funding.

Regarding climate resiliency, attendees said that the cycle of diminished soil moisture and thus vegetation in the upper watersheds is increasing fire risks and that managing watershed to have varying ages and distribution of trees would increase resiliency to fire. Irrigated areas are dealing with reduced water quantities and increased water salinity levels. Working agricultural lands could benefit from different soil health practices such as cover crops, reduced tillage, and organic amendments which would all improve water holding capacity and reduce erosion. Attendees mentioned that increased development has unintentional consequences including diminished water quality, dewatering of the alluvial aquifers, and increasing impervious surfaces which may worsen flooding. It was reported that restoration and flood management structures need to be rethought to handle new flood risks. Attendees concluded that it is important to find ways to normalize and scale-up green infrastructure which would help with flood resiliency and create benefits for urban wildlife and aquifer recharge. Additional solutions to increase the resiliency of watersheds included the use of small-scale decentralized structures that slow and spread flows.



## Summaries for the New Mexico River Stewardship Program Projects Completed in 2023

### Adair Spring Restoration (20-F)

**Project cost: \$47,852 (River Stewardship Program funds) and \$23,760 (local match)**

The Adair Spring Restoration Project was implemented by Upper Gila Watershed Alliance and the Gila National Forest. It aimed to restore a degraded wet meadow that had provided a water source for both livestock and wildlife. Severe pedestals developed throughout the site and there were cutbanks in the channel, dewatering the adjacent wetlands and meadow. Downstream of Adair Spring, a user-created road crossed Adair Canyon fourteen times as it neared the San Francisco River adding to the San Francisco River's excess sediment. By constructing perimeter fence of pipe and cable around Adair Spring in the upland areas, it will allow the wet meadow time to naturally heal itself, increase plant and animal species diversity and populations at the spring, and eliminated



Unauthorized motorized vehicle access to the area. The perimeter fence measures 8 feet high, with the first cable 10-12" from the ground to allow bears, mountain lions, and other wildlife access to the spring, and is approximately 6,000 linear feet in length.



Additionally, the Forest Service developed a well and drinking system nearby for the livestock to utilize to fulfill their agreement with the grazing permittee.

Photo above, Adair Spring  
Photo left, Pipe and cable fence was constructed in the uplands around Adair Spring to eliminate motorized vehicle access and decrease livestock and wildlife use.



## Riparian Restoration in Torreon Wash Watershed (20-G)

**Project cost: \$170,0778.76 (River Stewardship Program funds) and \$1,005 (local match)**

This project was implemented by Rio Puerco Alliance with support from River Source, a Navajo summer youth group, West Construction, and conducted in cooperation with Ojo Encino Farmers and Ranchers Committee, Hasbídító, and others during community planting days. Ecological challenges in the Rio Puerco Watershed include decades of overgrazing, dominance of sagebrush, pervasive erosion issues, lack of fencing and water sources, and ongoing overgrazing from feral and wild horses. Both Torreon Wash and the Arroyo Chico are intermittent to ephemeral streams, flowing in response to spring snowmelt and summer storms. The overall goal of the project was to establish vegetation and reduce erosion. Between 2021 and 2023, 1,800 cottonwoods, 874 shrubs and grasses, and 750 willows were planted. Planting areas were fenced. Planting success varied dramatically by location with survival rates ranging from 7-87%. Two floods during the 2021 monsoon season temporarily inundated a planting area, knocking down the T-post fences on the arroyo bank, and covering many plants in sediment. This contributed to a low revegetation rate. Drought was also a factor in the spring of 2022. During the project term, 350 erosion control structures were built including 310 one rock dams, 34 media lunas, and 6 Zuni bowls which helped aggrade gullies and improved water quality by reducing erosion and capturing sediment.



*Photo above, example of a one-rock-dam. June 2023*



## Valle de Oro National Wildlife Refuge Unit 2 Wetland Development and Water Quality Improvement Project (20-H)

**Project cost: \$159,985 (River Stewardship Program funds) and \$152,263 (local match)**

In the arid intermountain West, the Rio Grande Corridor is a crucial migratory pathway for birds, hosting over 200,000 waterfowl and 18,000 greater sandhill cranes, among other species. This region faces the ongoing threat of habitat fragmentation, with 93% of its historical habitat already altered or lost. Valle de Oro National Wildlife Refuge (NWR), the first urban national wildlife refuge in the Southwest, now plays a key role in connecting and sustaining these vital habitats. The overarching goals of the Refuge are to enhance water quality, groundwater recharge, wetland, and native riparian habitats, with a specific project focusing on reestablishing native riparian and wetland vegetation in Unit 2. Restoration efforts at Valle de Oro, undertaken by Rio Grande Return (RGR) have only been made possible through a multiagency coordination and funding effort and by youth corps, volunteers, refuge staff and contractors, and community partners.

The NMED River Stewardship funding not only provided initial investments in ecological restoration activities and the reestablishment of wetland habitat, but also provided a framework for establishing a successful and long-term partnership between RGR and Refuge staff which has facilitated additional investments in the Refuge. RGR entered into a Cooperative Agreement with the US Fish and Wildlife Service to support Refuge management and to implement additional restoration activities on site to replicate pre-1935 conditions, lower groundwater levels, and support these critical habitats, followed by planting and seeding to improve soil stability and create essential wildlife habitats.

In the fall of 2022, after delays brought on by the Covid-19 pandemic, RGR began planting Unit 2 in earnest. The harvesting of dormant cottonwood and willow began in January 2022 at Bosque del Apache NWR and Sandia Pueblo, with initial plantings beginning in February 2022. In February and March 2022, RGR successfully planted around 800 cottonwood and 35,000 willow trees in Unit 2 of the Refuge. RGR planted 312 tall pots and 98 giant sacaton, additionally, RGR harvested and planted a total of 17,152 salt grass plugs. Further



*Photo above, Volunteers planting willow poles in Valle de Oro.*

harvesting and planting of cottonwood and willow took place in January 2023, with an additional 400 cottonwood and 15,000 willow trees planted in Unit 1 of the Refuge in February and March 2023. Planting was conducted just below the groundwater level to ensure survival, benefiting from the first-ever irrigations in Unit 2 using newly constructed acequias. Irrigations have continued through 2023, with coordination between RGR, Refuge staff, and Middle Rio Grande Conservation District to optimize efficiency and thorough watering of Unit 1 and 2 plantings. These efforts have led to an observed survival rate of over 80% for cottonwood and more than 90% willow and salt grass surviving.



## **Animas River Habitat Enhancement and Bank Stabilization Project (20-I)**

**Project cost: \$134,913 (River Stewardship Program funds) and \$52,388 (local match)**

The Animas River Habitat Enhancement and Bank Stabilization Project was conducted by the City of Aztec with support from Basin Hydrology on design, Cottonwood Consulting and Western Cultural Resources on surveying, San Juan Soil and Water Conservation District on project management assistance, and Andamo Sanchez Excavation on construction. The project is located in the center of Aztec, New Mexico and had project components at Riverside Park and Rio de Animas Park. The project at the Rio de Animas Park removed noxious plants and inappropriate debris used in the past for banks stabilization and improved a boat ramp for kayaks and rafts. At the Riverside Park, a popular concrete foot path along the river was imperiled in several locations by the rapidly eroding river-right bank, and the river was also overly wide and shallow at this segment. This portion of the project replaced failing and hazardous bank stabilization materials (e.g. metal, concrete, and car parts) with geomorphically-appropriate flow redirecting rock structures, increased safety and vegetation establishment, protected park infrastructure, and enhanced in-stream fish habitat. Overall, the project was a success and met the anticipated objectives.



*Photo above, Riverside Park, immediately following construction, looking upstream of the Animas River at the J-hook rock structure and pool in the distance for improved fish habitat and a bank step rock bench adjacent to the sidewalk in the foreground.*



## Wetland and Stream Restoration of Lower Jaramillo Creek (20-J)

**Project cost: \$227,493 (River Stewardship Program funds)**

The Wetland and Stream Restoration of Lower Jaramillo Creek project aimed to address nutrient and turbidity impairments on the lower reach of Jaramillo Creek above the confluence of the East Fork Jemez River in the Valles Caldera National Preserve (VCNP). Jaramillo Creek has been degraded from past heavy sheep, cattle, and elk grazing pressure which led to cascading issues such as reduced vegetation cover on the banks leading to stream channel changes including widening, channel incision, and channel cut-offs. The channel incision has lowered the water table causing a conversion from wetland to upland vegetation in many areas and has led to increased runoff erosion and gulying further contributing to the turbidity impairment. The project's objectives were to utilize stream and wetland restoration techniques such as one rock dams, plug and ponds, contour swales, channel realignment, sod bank transplants, and fence removal to improve stream channel geometry, reconnect floodplains, remove old horse paddock fencing, and restore the wetlands of Lower Jaramillo Creek.

Restoration occurred over 3.5-miles of Lower Jaramillo Creek and included 221 restoration structures. As a result of the restoration, approximately 111-acres of wetlands were added to the Lower Jarmillo Creek wetland footprint. Wetland area increased most in the upper and lower reaches of the project area. Contributing to the restoration of the wetlands, Keystone Restoration Ecology, the project contractor, removed a total of 5,700-linear feet of fencing from the upper project area just below the VC02 road allowing for unrestricted spread of water flows contributing to wetland restoration and repair of gullies from fence line trailing with plug and pond and contour swale structures.

The work on Jaramillo Creek, in addition to other work completed in the VCNP in the last few years, has helped contribute to several water quality impairment delisting's for the East Fork of the Jemez River, the receiving stream of Jaramillo Creek. In the 2024-2026 Integrated Report Draft, the East Fork of the Jemez River will have the turbidity impairment removed. The work to improve the wetlands around Jaramillo Creek and improve the stream channel likely contributed to the delisting of the turbidity impairment.



*Photo above, One rock dam constructed just below a spring that feeds Jaramillo Creek.*



## Restoration of Trout Habitat on the Cimarron River (20-K)

**Project cost: \$304,282 (River Stewardship Program funds) and \$144,180 (Office of the Natural Resources Trustee settlement funds)**

The Restoration of Trout Habitat on the Cimarron River project improved instream trout habitat and fish holding capacity in the Cimarron River through the Cimarron Canyon State Park and the Colin Neblett Wildlife Management Area. The project's primary goal was to improve overwintering trout habitat on the Cimarron River below Eagle Nest Dam. Winter flows in the Cimarron River below the dam are only supported by Tolby Creek and Clear Creek when the dam is not releasing water, leading to low flows and isolated habitat when the stream is icy. The low winter flows decreased the food base available to support a fishery and fueled food competition from fish overcrowding in the few deep pools that existed in the shallow, widened reaches of the river.

The original River Stewardship Program project included one mile of trout habitat restoration in the Cimarron River near the Maverick Campground. The Offices of the Natural Resources Trustee provided additional funding for the project to expand the project area from a natural resources damages settlement received from Fronk Oil as a result of a December 2016 tanker truck fuel release into the Cimarron River upstream. The expanded project area included installation of a headgate and sediment trap on the Cimarron River to help extend the life of the Gravel Pit Lakes for fishing and recreation at Maverick Campground and expanded the instream trout restoration an additional 0.3 miles.

Construction of the original project occurred in Fall 2021 and was complete by October 2021. The cooperator, Cimarron Watershed Alliance, had substantial funding leftover after construction and worked with NMED and NMDGF to expand the project area an additional 0.75 miles upstream. NMDGF and Cimarron Watershed Alliance worked to expand the design and ensure permitting for the expanded project area in early 2022. The final phase of construction to complete the project occurred in November 2022. Upon project completion, a total of 2.1 miles of trout habitat on the Cimarron River was restored.



*Photo left, Heavy equipment placing a habitat rock in the Cimarron River during a wintery day.*



## **Santa Fe River – East Alameda Rain Garden and Camino Escondido Zuni Bowls (20-M)**

**Project cost: \$164,041 (River Stewardship Program funds)**

The Santa Fe Watershed Association (SFWA) implemented this project through the River Stewardship Program to protect and improve water quality in the Santa Fe River at a targeted urban reach near downtown Santa Fe, NM. Much of the urban reach of the River does not meet its primary contact and aquatic life designated uses under New Mexico’s water quality standards. This section of the Santa Fe River is currently listed as impaired for *E. coli*, Polychlorinated Biphenyls (PCBs), and Aluminum. The project focused primarily on the *E. coli* impairment. The most likely source of this impairment is storm water runoff and the transport of suspended animal wastes and sediment from the urban environment. The main project accomplishments were the construction of two stormwater control and management features (a rain garden and a Zuni bowls stormwater outlet drop structure) along the Santa Fe River in highly visible areas near East Alameda and Canyon Road. These structures will remove some of the *E. coli* and other pollutants in stormwater runoff before it reaches the Santa Fe River, and demonstrate aesthetically pleasing stormwater controls that if repeated may help the river meet its standards.



*Photo above, Rain gardens along East Alameda at Brothers Lane, Santa Fe.*





## Two Rivers Park Restoration Phase III (22-R)

**Project cost: \$215,730 (River Stewardship Program funds) and \$100,121 (local match)**

The Two Rivers Park River Restoration Phase III project addressed poor river conditions immediately upstream of the Two Rivers Park. This reach of the Rio Ruidoso was assessed and determined to have poor fish habitat due to: no deep water, no overhanging streambank vegetation, no woody debris or large rock structures in the channel. The primary objective of the project was to increase functional fish habitat, including better in-stream structure, better cover (both vegetative and structural), deeper pool forms, improved bedload transport to improve macroinvertebrate habitat in riffle forms, an increased density of fish population and the associated holding capacity, to improved sport fishing experience for Ruidoso’s residents and visitors.

In-stream structures were completed in the fall of 2022 along with willow plantings. Plantings including New Mexico Olive, Red Osier Dogwood, Purpleleaf Sand Cherry, Common Purple Lilac, and Three-Leaf Sumac were planted in April of 2023. All deliverables and final invoices were submitted to and approved by NMED in June 2023 – a full year ahead of schedule. The Village of Ruidoso also over matched the project by \$15,069.47. The Village will continue to monitor the project site and re-plant willows if necessary to ensure project success.



*Photo left, Two Rivers Park Restoration Phase III – rock and woody debris convergence structure creating pool habitat.*



## Summary of Office of the Natural Resources Trustee Partnership Projects Completed in 2023

### Red River Aquatic Habitat Restoration Project – Part Two (22-S)

**Project cost: \$1,084,053 in Natural Resources Damage Assessment and Restoration settlement funds for the Office of the Natural Resources Trustee**

The NM Office of the Natural Resource Trustee (ONRT) manages funds placed in a public trust account to mitigate the effects of long-term mining in the Red River watershed caused by Chevron mining activities. In 2016 the ONRT solicited proposals from local entities for projects that would help restore the environmental impacts by the Chevron mine's operations. The Village of Questa recognized that the health of the Red River is integral to the health of the community, and that outdoor recreation is an important component of its overall economic development strategy. The Village applied for and was awarded \$1,130,699 for a river restoration project on the Red River within the municipal limits of the Village. The project is located along the Red River within Questa, New Mexico, starting approximately 1,800 feet downstream from Eagle Rock Lake, and continuing downstream for approximately 3 river miles through the residential part of the Village of Questa, New



*Photo above, Red River Aquatic Habitat Restoration project post-construction bank stabilization with embedded logs and boulders on a sharp river curve.*

rock pour-overs in riffle areas to create micro-pockets of slack water habitat; installing new riparian plantings of willow and cottonwood where appropriate; provide river access to public lands including parking areas; involve landowners in discussions regarding specific improvements that involved their properties and offer educational and interpretive materials to inform the public about the river restoration effort.

Mexico on the northwest side of Old Red River Road. In 2018, ONRT and NMED signed a Memorandum of Agreement for WPS to manage this aquatic habitat restoration project and ONRT authorized the costs of this project to be reported as match to Section 319 grants. Project construction was completed in 2022 and a ribbon cutting ceremony was held in December 2022. The project was successfully completed and NMED accepted final deliverables including the final report and final invoice in June 2023.

The Red River Aquatic Habitat Restoration Project included: placing grade control structures at regular intervals to prevent future downcutting; placing deflector type structures on the riverbanks at selected locations; slowing or arresting streambank erosion; creating, inducing, and enhancing new pool forms; placing habitat rocks and submerged



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## New Mexico Mining Act

The New Mexico Mining Act obligates the New Mexico Environment Department (NMED) to review and comment on various applications associated with non-coal mining in New Mexico. Proposed actions range from recreational mining (such as panning for gold) to large mine and mill operations. For minimum-impact exploration applications or modifications of existing exploration permits, NMED is provided an opportunity for formal comment. For new mining operations, NMED is responsible to “certify that water quality standards are expected to be met” and to determine that the proposed post-mining closeout plan will “achieve compliance with all applicable air, water quality and other environmental standards if carried out as described.” For modification of existing operations, NMED has the opportunity to comment on proposed permit changes.

NMED has a Mining Act team that includes representatives from SWQB, GWQB, and the Air Quality Bureau (AQB) to review mining applications and otherwise support the work of the New Mexico Mining and Minerals Division (MMD) of the Energy, Minerals, and Natural Resources Department (EMNRD). This work involves reviewing applications, site inspections, hydrologic interpretations, and evaluating water quality standards against proposed mining activities. SWQB discusses Best Management Practices (BMPs) and other mitigation measures with MMD in an effort to implement mining plans that prevent or minimize environmental risks. The team’s written comments often include conditions necessary to ensure compliance with both state and federal environmental standards. The team also participates in meetings and reviews documents in collaboration with EMNRD, New Mexico Department of Game and Fish (NMDGF), USFS, New Mexico State Land Office (SLO), the Corps, EPA, and others.

During the October 1, 2022 to September 30, 2023 reporting period, SWQB staff reviewed and submitted comments on 19 (9 from southern NM – 10 from northern NM) Mining Act submissions from MMD. Like 2022, the majority of mining permit activity this year was for revisions or modifications to existing permits.

In Northern New Mexico, SWQB staff provided comments on 10 mining permits including five permit modifications for the partial release of financial assurance (four of which were for humate mines), four existing permit modification requests which all involved updates to Closure/Closeout Plans needed to support mine reclamation activities, and one permit for exploration activities. Humate is a highly organic substance from which humic acids can be extracted and used as a soil amendment in agriculture. It is common practice for humate mines to conduct concurrent reclamation with mining operations. As the shallow mining pit follows the seam of humate, the pit is being back-filled. The partial release of financial assurance can be requested when the earth work is completed, and full financial release can be requested once revegetation success has been achieved. Successful revegetation is important for water quality to prevent erosion from impacting surface water quality.

The Cebolleta Exploration project is being conducted by Cibola Resources, LLC a subsidiary of American Future Fuel Corporation within the Cebolleta Land Grant approximately 4.7 miles southeast of Seboyetta, NM. The project includes drilling 22 holes to explore for uranium and other radioactive elements and minerals. The applicant will be performing gamma radiation survey at each drill site before and after exploration activities and will be restoring each drill site to pre-exploration gamma radiation levels. The original application was modified to relocate Drill Pad #1 away from an ephemeral arroyo to avoid potential impacts to surface water.



*The Cebolleta Exploration project, April 3, 2023.*

SWQB staff provided additional comments that included a list of BMPs for mining related activities to further protect surface water quality. Common BMPs for mining exploration activities include cleaning equipment and checking equipment for leaks, having spill clean-up materials on site, locating roads and drill pads away from streams and arroyos, maintaining roads and avoid driving on roads in wet conditions which can damage roads and increase erosion, installing erosion controls for ground disturbing activities, and obtaining all appropriate environmental clearances and permits.

SWQB staff provided additional comments on the 30% Closure/Closeout Plan (CCP) for the St. Anthony Mine which was an open pit and

underground uranium mine that was operated by United Nuclear Corporation on land owned by the Cebolleta Land Grant between 1975 and 1981. The 30% CCP has not yet considered uncertainty in the stormwater runoff model that was used to design and size the drainage structures and the arroyo structures needed for mine reclamation. The stormwater model also relies on historical rainfall data. SWQB staff commented that the CCP should account for model uncertainty and future rainfall. Over the next 50 Years, the New Mexico Bureau of Geology and Mineral Resources has estimated that the true precipitation from the 100-year storm may actually be closer to that which is currently projected for a 500-year storm. In a changing climate, using historical rainfall data may result in undersized structures and may increase the likelihood of structures failing.



*Agency site visit St. Anthony Mine, January 10, 2023.*

The long-term success of the reclamation structures is an important factor for protecting surface water quality.

In Southern New Mexico, there have been 9 Mining Act comment letters—3 for existing mine permit revisions or modifications, 5 minimum impact exploration projects, and 1 permit renewal for a minimum impact project.



Southern New Mexico Mining Act activities were dominated by minimal impact exploration work in search of precious metals. Staff at the Silver City field office wrote nine Mining Act comment letters, with five of those for small exploration projects looking for silver, gold and copper metals. Most of these exploration projects are in dry desert lands and seldom is there a concern for either ground water or surface water pollution. However, an exploration project near Truth or Consequences proposed trenching in an ephemeral tributary to the Rio Grande and the SWQB coordinated with the US Army Corps of Engineers to ensure that all necessary protection were in place. Other permitting actions in southern New Mexico include reissuing the exploration permit for Summa Silver near Mogollon, NM and several permit modifications for the large copper mines operated by Freeport McMoRan (FMI) in Grant County. Staff performed several site inspections for permitted exploration projects and discovered improperly stored fuel and oil at the Summa Silver exploration project. Coordination between SWQB, the Mining and Minerals Division and the operator resolved the issue very

quickly and follow-up inspections have shown full compliance with storage requirements.



Staff from the southern field office also investigated potential mine-related contamination in Hanover Creek which flows adjacent to several large copper mines operated by FMI. Heavy rains in October 2022 percolated through abandoned mine workings adjacent to the creek picking up dissolved metals including copper. When this groundwater encounters the higher pH waters of Hanover Creek the metals, and particularly copper sulphate, dropped out of solution and settled on the creek bottom turning it a bright blue. FMI completed corrective action measures to treat the low pH groundwater prior to contact with Hanover Creek and the copper precipitate concern has been greatly reduced.



*Photo above; The open pit at the Cobre Copper Mine in Grant County operated by FMI.*

*Photo left; Hanover Creek with blue copper sulfate precipitate on the stream bottom. Corrective actions by FMI have addressed the source of the copper sulfate.*



## Wetlands Program

### Wetlands Roundtables

The SWQB Wetlands Roundtables continued in Fall 2022 and Spring 2023 remotely as Webex Webinars. The SWQB Wetlands Program conducted one very successful Wetlands Roundtables in the Fall of 2022 and two more in the Spring of 2023 and both the Northern and Southern Wetlands Roundtables exceeded expectations in remote participant attendance. The New Mexico Wetlands Roundtables are conducted typically four times each year, twice as the Northern Wetlands Roundtables and twice as the Southern Wetlands Roundtables, as part of a Wetlands Program Development Grant from EPA Region 6 to foster partnerships and collaboration for the restoration and protection of wetlands and riparian resources in New Mexico. The Roundtables promote networking and information exchange among water and natural resources professionals and interested groups.

The SWQB Wetlands Program conducted another very successful virtual Wetlands Roundtable in the Fall 2022. The Fall Wetlands Roundtable was conducted December 8, 2022, with more than 154 attendees participating in the meeting.

The Roundtable celebrated 50 years of the Clean Water Act with two informative presentations. Heidi Henderson, SWQB, presented “*Celebrating 50 Years of the Clean Water Act*” promoting awareness of efforts to protect and restore clean water by SWQB over the years and acknowledging that clean water is a human right through celebration and outreach during October, the “*Month of Clean Water.*” Kyla Chandler of EPA Region 6 presented the history of the Clean Water Act and emphasized that the future will be looking toward equity in access to clean water and the environment, while making communities more resilient to climate change.



#### GOALS

The goal of the Clean Water Act is to have a healthy environment, a healthy people, and a healthy economy. To achieve these goals we need actions to reduce the effects of climate change, support economic development, environmental justice, and equitable access to blue & green spaces.

#### CURRENT ADMINISTRATION

The current administration recognizes, supports, and encourages this more holistic, intersectional approach to protecting our lives & livelihoods while making our communities more resilient to the impacts of climate change.

*Slide from the “Month of Clean Water” presented by staff from EPA Region 6 - The Next 50 Years.*

A second focus was on historic rainfall and fire in New Mexico in 2022 through presentations given by the US Forest Service. Kerry Jones and Mike Natharius each gave presentations for Santa Fe and Gila National Forests in New Mexico and statistics about historic precipitation this summer. Greg Miller presented wetland restoration efforts on the Carson National Forest. Additional excellent presentations were given by Chuck Carpenter of the National Wild Turkey Federation and their program to restore riparian areas, and by Aaron Miller, NRCS National Technical Committee for



Hydric Soils, provided new New Mexico data being added to the Soils Survey and available on-line. Also, US Army Corps of Engineers Project Manager, Forrest Luna, gave an update on Corps activities and the status of WOTUS. Another important topic was presented by Todd Caplan, Geosystems Analyses, in the use of active floodplain and vegetated bars in the Middle Rio Grande by the federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*) mating pairs.

**Forest Service hosts Moroccan partners in New Mexico exchanging watershed knowhow**



San Antonio Creek, Jemez Springs. Visiting small stream structures and discussing monitoring requirements and tools. USDA Forest Service photo by Angela Trujillo.

In the Spring, the Northern Wetlands Roundtable webinar was conducted on March 21, 2023. Over 80 participants attended the virtual meeting. Three presentations focused on wetland restoration: Anima Sena of Santa Fe National Forest presented “*International Watershed Management: From the Valleys of New Mexico to the Mountains of Morocco*,” Steve Vrooman of Keystone Restoration Ecology presented on the Lower Jaramillo Creek Restoration Project, and Matthew Monjaras of Impact Outdoors presented on the Tres Lagunas Restoration at Santa Rosa Wetlands. With the recent focus on New Mexico wildfires, Lea Knutson of Hermits Peak Watershed Alliance discussed watershed level response efforts to the Hermit’s Peak/Calf Canyon Fire. Patricia Dappen and Katie Withnall of New Mexico Highlands University’s New Mexico Forest and Watershed Restoration Institute demonstrated the “*New Mexico Vegetation Treatment Geodatabase*:

*Slides from Spring presentation at the Northern Wetlands Roundtable.*

*Applications for Land Management*”. SWQB’s Meredith Zeigler discussed New Mexico’s water quality in “*CALM Revision and Integrated Report*”, and SWQB’s Lucas Graunke provided a mini “how-to” of using ArcGIS Story Maps as an outreach tool. Lastly, Forrest Luna with the US Army Corps of Engineers provided a regulatory update for the attendees.

On April 19, 2023, the New Mexico Southern Wetlands Roundtable was conducted remotely by Webex webinar with over 98 participants in attendance. The Southern Wetland Roundtable covered a variety of topics relevant to Southern New Mexico as well as the entire state. Two presentations focused on wetland restoration: Christopher Rustay of Playa Lakes Joint Venture presented “*Playas of the Eastern Plains: A Restoration Update*” and Mike Gaglio of Desert Native

**Engage our Community with Weekly Workdays**





Plants and Connie Maxwell of New Mexico Water Resources Research Institute presented “*Watershed Restoration in the Hatch & Mesilla Valley: Rincon Arroyo Priority Project.*” Sarah Griffin of SWCA Environmental Consultants discussed protection of New Mexico wetlands’ acreage and condition. Virginia Seamster, NM Department of Game and Fish, presented on “*Revising the State Wildlife Action Plan for New Mexico.*” Web-based training videos for the New Mexico Rapid Assessment Method (NMRAM) montane riverine and low-land riverine subclasses of wetlands were introduced by Elizabeth Milford of the University of New Mexico Natural Heritage Program. Michael Scialdone of Pueblo of Sandia Environment Department discussed how to identify and eradicate invasive ravenna grass. SWQB’s Elizabeth Stuffings presented on the upcoming “*2023-2024 Sacramento Mountains Watershed Survey*”. And, finally, Reid Riley of the US Army Corps of Engineers provided a regulatory update for the attendees. Recordings of all Roundtable presentations are available from the Wetlands Program.

### Wetland Projects Completed in 2023

Two Wetlands Program projects funded under CWA Section 104(b)(3) Wetlands Program Development Grants (WPDG) were completed this year.

### Mapping and Classification of Wetlands in the Lower Rio Grande Basin Mapping and Classification of Wetlands in the Lower Rio Grande Basin (CD #01F39701)

**Project Cost: \$314,233.78 (WPDG Federal funds), \$128,085.68 (Local Match funds)**

The SWQB Wetlands Program, in cooperation Saint Mary’s University of Minnesota Geospatial Services, undertook new wetlands mapping as well as updating existing wetlands mapping in south central New Mexico, including the Lower Rio Grande below Caballo Reservoir, the San Andres and Organ Mountains, Chupadera and Otero Mesas, the Salt Basin, and contiguous areas. The project covered approximately 8.9 million acres,



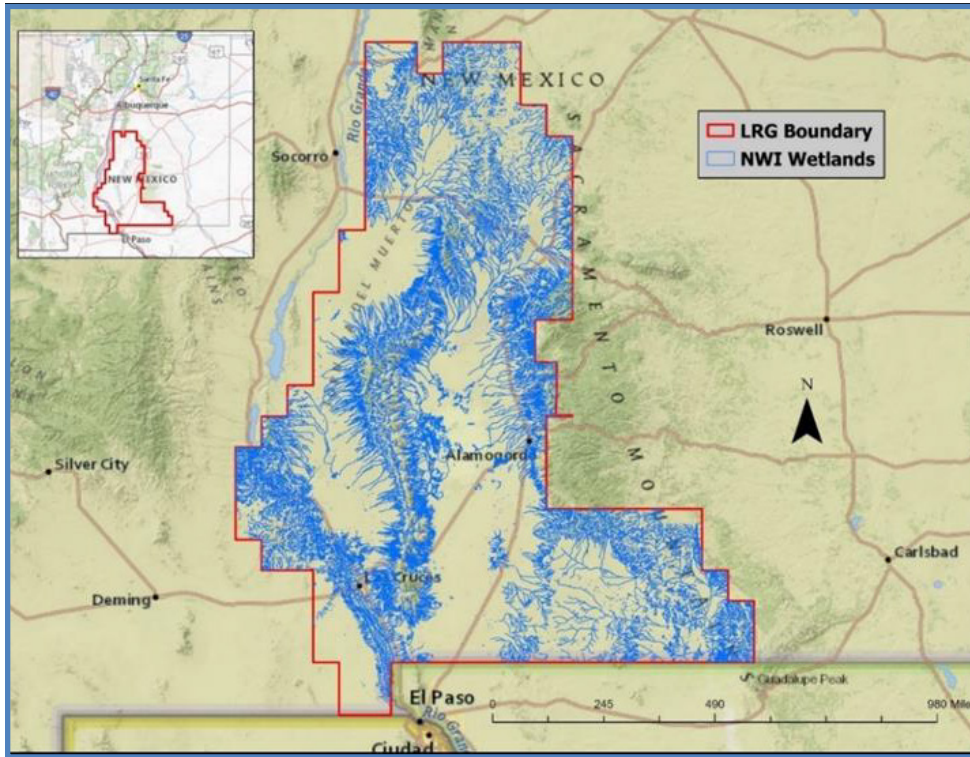
*Wetlands at White Sands National Park.*

(~226 quadrangles) as part of the effort to complete updated mapping on all of New Mexico’s wetlands. Four classification systems were applied to provide comprehensive data analysis and application to various mapping uses. The initial mapping was performed in accordance with the National Wetlands Inventory (NWI) protocols using the *Classification of Wetlands and Deepwater Habitats of the United States*, (Cowardin et al. 1979), and *System for*





*Classification of Riparian Areas in the Western United States* (USFWS 2009) classifications for inclusion of the mapped areas on the US Fish and Wildlife Service NWI Wetlands Mapper.



*Map of Lower Rio Grande project area and mapped wetlands in blue. (note at this scale, mapped wetlands polygonal features are exaggerated for viewing.)*

ability to provide each function. As part of this project SWQB designated draft classified wetland segments as a next step toward developing Wetland Water Quality Standards. The mapping scale is 1:12,000 with a minimum mapping resolution of at least one-quarter acre and is compliant with the National Wetlands Mapping Standard. Pre- and post-mapping field reviews were used to certify that the data was correct according to these standards.

Nearly 25,200 polygons representing wetlands greater than one-quarter acre in size (FGDC 2009) were mapped and classified, totaling 131,346 acres (205 sq mi). The polygonal wetland features and deepwater habitat features include marshes, floodplains, cienegas, lakes and ponds, playas, and rivers. Additionally, 522 riparian polygonal features equaling approximately 2,092 acres (3.3 sq. mi) of riparian areas were captured and mapped using the *System for Classification of Riparian Areas in the Western United States* (USFWS 2009) (Allen et al 2022).

A Technical Advisory Committee (TAC) was established, and two TAC meetings were conducted. SWQB Wetlands Program and GSS developed and conducted virtual Wetlands Mapping Webinars which were also recorded. The virtual mapping webinar format has been added to the outreach toolbox for the SWQB Wetlands Program. This project provides the beneficiaries with a comprehensive framework to launch further monitoring, assessment and analyses for future education, conservation, and restoration efforts.

In addition, the wetlands were coded in accordance with the landscape position, landform, waterflow path, and water-body types (LLWW) mapping classification developed by Ralph Tiner (2003) and included descriptors for arid lands wetlands. The LLWW provides some of the necessary information for assigning the wetlands to hydrogeomorphic (HGM) subclasses (Brinson 1993) for New Mexico Rapid Assessment of Wetlands (NMRAM) development. The HGM classification was applied to all wetlands mapped. Wetlands functional modeling was applied using twelve wetland functions specific to New Mexico, to assign to each wetland based on their



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## Mapping and Classification of Wetlands in the San Juan River and Estancia Closed Basins of New Mexico (CD #01F39501)

**Project Cost: \$262,297.36 (WPDG Federal funds), \$106,125.53 (Local Match funds)**



*Palustrine Wetland in Canyon Largo, a tributary to the San Juan River.*

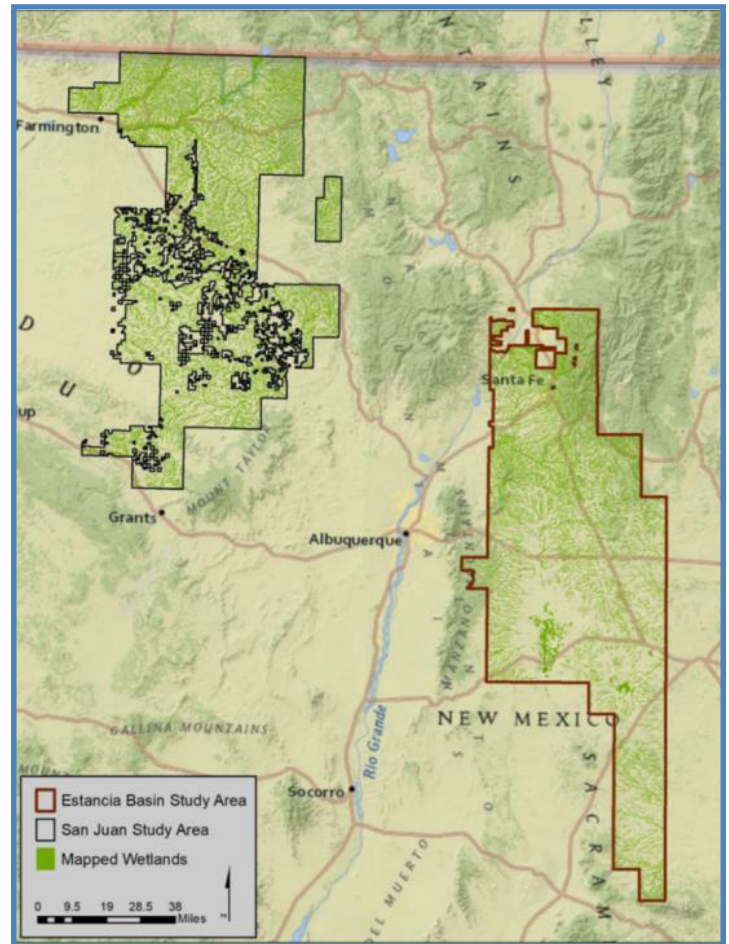
The SWQB Wetlands Program in cooperation with Saint Mary's University of Minnesota GeoSpatial Services mapped and classified wetlands in the San Juan Basin and the Estancia Closed Basin areas. The San Juan project area ranges from the state border in the north to Interstate 40 in the south, with the Nacimiento Mountains to the east. It lies almost entirely within the Colorado Plateau physiographic province. The Colorado Plateau covers the northwest portion of the state and includes the San Juan Basin, a key source of oil, gas, and uranium for the state of New Mexico. The Estancia Basin project area ranges from the Sangre de Cristo Mountains in the north to the Sacramento Mountains in the south, with the Manzano Mountains just to the west. It is split between the Southern High Plains and the Rio Grande Rift physiographic provinces. The project covered approximately 6.1 million acres, (~170 quadrangles) as part of the effort to complete updated mapping on all of New Mexico's wetlands. Four classification systems were applied to provide comprehensive data analysis and application to various mapping uses. The initial mapping was performed in accordance with the National Wetlands Inventory (NWI) protocols using the *Classification of Wetlands and Deepwater Habitats of the United States*, and *System for Classification of Riparian Areas in the Western United States* classifications for inclusion of the mapped areas on the US Fish and Wildlife Service NWI Wetlands Mapper. In addition, the wetlands were coded in accordance with the landscape position, LLWW mapping classification and included descriptors for arid lands wetlands. The LLWW provides some of the necessary information for assigning the wetlands to HGM subclasses for NMRAM development. The HGM classification was applied to all wetlands mapped. Wetlands functional modeling was applied using twelve wetland functions specific



to New Mexico, to assign to each wetland based on their ability to provide each function. As part of this project SWQB designated draft classified wetland segments as a next step toward developing Wetland Water Quality Standards. The mapping scale is 1:12,000 with a minimum mapping resolution of at least one-quarter acre and is compliant with the National Wetlands Mapping Standard. Pre- and post-mapping field reviews were used to certify that the data was correct according to these standards.

Approximately 43,200 polygons representing wetlands greater than one-quarter acre in size were mapped and classified, totaling 112,017 acres (175 sq mi). The polygonal wetland features and deepwater habitat features include marshes, floodplains, cienegas, lakes and ponds, playas, and rivers. Additionally, 1,166 riparian polygonal features equaling approximately 1,786 acres (2.8 sq. mi) of riparian areas were captured and mapped using the *System for Classification of Riparian Areas in the Western United States*.

A TAC was established, and two TAC meetings were conducted. SWQB Wetlands Program and GSS developed and conducted virtual Wetlands Mapping Webinars which were also recorded. The virtual mapping webinar format has been added to the outreach toolbox for the SWQB Wetlands Program. The mapping and classification data was used to inform the application of classified segments for wetland water quality standards based on wetland HGM subclasses described through the mapping process. This project provides the beneficiaries with a comprehensive framework to launch further monitoring, assessment and analyses for future education, conservation, and restoration efforts.



## Equity and Environmental Justice

President Biden signed Executive Order (EO) 14008, “Tackling the Climate Crisis at Home and Abroad,” in January 2021. Section 223 of EO 14008 outlines next steps for the Justice40 Initiative, including establishing a goal that 40 percent of the overall benefits of certain federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution.

The CWA §319 grant program is considered a covered program by the Justice40 Initiative. The anticipated result of this effort is a set of options for revising the New Mexico NPS Management Program to be more inclusive of and better serve disadvantaged communities, and increase equity and environmental justice. Be-



gining in 2023, the EPA guidelines will allow current EPA-approved Tribal Nonpoint Source Management Plans to be considered as an acceptable alternative to a nine-element WBP. States may award CWA Section 319 watershed project funds to CWA Section 319-eligible Tribes to implement projects consistent with these plans. Furthermore, beginning in 2023, the EPA guidelines will allow watershed project funds to be used to support WBP development and capacity building in disadvantaged communities, and these projects can also include implementation of demonstration projects. The Climate and Economic Justice Screening Tool (<https://screeningtool.geoplatform.gov/en>), developed as guidance for EO 14008, shows that approximately 90% of New Mexico qualifies as a disadvantaged community.

An additional way that the NPS Management Program supports environmental justice and disadvantaged communities is through a policy change being proposed for 2024 NPS Management plan revision regarding non-federal match. Section 319(h)(3) of the Clean Water Act states, “[t]he Federal share of the cost of each management program implemented with Federal assistance under this subsection in any fiscal year shall not exceed 60 percent of the cost incurred by the State in implementing such management program and shall be made on condition that the non-Federal share is provided from non-Federal sources.” States usually pass on this 40% non-federal match requirement to sub-grant recipients and often to contractors, such that an individual project can only be funded with Section 319 funds up to 60% of the project cost. However, this plan revision establishes that NMED may reduce the match requirement to as low as 10% of total project costs depending on its ability to comply with Section 319(h)(3) through other sources of non-federal funds that support the NPS program, such as River Stewardship Program funds. Reducing the non-federal match requirement for individual projects will facilitate project development in areas with a prevalence of federal land and federal cooperators whose expenses can’t be reported as match and will reduce the burden on disadvantaged communities.

In 2018, NMED adopted two new policies that SWQB and WPS began following and continued to follow in 2023, related to equity and environmental justice. First, Policy 07-11 (“Limited English Proficiency (LEP) Accessibility & Outreach”) requires programs to conduct limited English proficiency analyses for activities or proceedings that require public participation. Clean Water Act Section 401 certifications are included in this requirement, as will be the public comment period for the NPS Management Plan revision in 2023. LEP analyses typically use the American Communities Survey data from the U.S. Census Bureau accessed within EPA’s Environmental Justice Screening and Mapping Tool ([www.epa.gov/ejscreen](http://www.epa.gov/ejscreen)) to determine the number or percentage of linguistically isolated households, and the languages spoken in those households, within the area affected by the NMED activity or proceeding.

“Public Participation.” A key aspect of this policy is to support involvement of all people in NMED’s activities and proceedings by further educating NMED staff on the topics of federal civil rights requirements, environmental justice, and public participation. The policy also supports providing opportunities for public participation above and beyond NMED’s statutorily mandated public participation requirements. In addition to limited English proficiency, the policy requires NMED staff to consider how best to reach minority communities and people with low income. The policy requires development of a Public Involvement Plan (PIP) for any activity or proceeding requiring public participation. Example PIPs are available on NMED’s public notices web page ([www.env.nm.gov/public-notices/](http://www.env.nm.gov/public-notices/)). To better comply with this policy, WPS began providing all announcements made to subscribers of the SWQB email list in English and Spanish (with translations provided by a certified translator) in 2022.



## Additional Management Practices by Non-NMED Agencies

The following land management agencies implemented various projects and best management practices in New Mexico that ultimately contribute to the reduction of NPS pollutants in surface waters. The most common NPS issues being addressed are excessive erosion, sedimentation, encroachment of exotic vegetation, streambank instability, excessive nutrients, and excessive water temperature. The following summaries were submitted by the agencies and included here.

### The Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS) provided the following summary of projects implemented in federal fiscal year 2023. Emergency Watershed Protection (EWP) Program projects are highlighted below.

#### **Cooks Peak EWP:**

In May of 2022 a fire started North of Ocate that burned a total of 59,359 acres. The fire posed a threat to the Miami Lake Watershed. In 2023, through the EWP program NRCS seeded and masticated 450 acres that was having significant erosion concerns. In the coming year the sponsor Colfax County will install sediment basins to prevent soil from eroding.



*450 acres have been seeded and masticated on the Cooks Peak fire.*





## Calf Canyon/Hermits Peak Fire EWP

The 2022 Calf Canyon/Hermits Peak Fire was the largest and most destructive wildfire in the history of New Mexico, burning 341,471 acres in San Miguel, Mora, and Taos counties. The fire destroyed at least 903 structures, including several hundred homes, and damaged 85 more, while threatening more than 12,000 other structures in the region.

Through the EWP program NRCS has implemented:

Quantity	Practice
50,000 acres	Seeding
30,000 acres	Mulching
17,000 feet	Earthen Diversion
4,974 cubic yards	Pit Ponds
30,000 cubic yards	Sediment removal
31,356 feet	Flood Barrier Bags





## Hondo Valley EWP

Following major flooding in eastern Lincoln County in 2021 significant watershed impairment occurred that increased the risk of future erosion along the Rio Ruidoso. In 2023 NRCS through the EWP program installed revetment fence, rock riprap, concrete, and gabion baskets to reduce the risk of future soil erosion that threatens human life or property.

Through the EWP program NRCS has implemented:

Quantity	Practice
222 linear feet	Revetment Fence
389 cubic yards	Rock Riprap
19 cubic yards	Concrete
90 cubic yards	Gabion Baskets





**McBride EWP** Following major flooding in eastern Lincoln County in 2021 significant watershed impairment occurred that increased the risk of future erosion along the Rio Ruidoso. In 2023 NRCS through the EWP program installed revetment fence, rock riprap, concrete, and gabion baskets to reduce the risk of future soil erosion that threatens human life or property.

Through the EWP program NRCS has implemented:

Quantity	Practice
11,114 CY	Debris/ Sediment Removal
4 #	Trash Racks
3#	Sediment Ponds







## New Mexico Department of Game and Fish

### **eDNA-based inventory of the distribution of threatened fish in the upper Rio Grande, Rio Chama, and Mimbres River basins**

This project, completed in 2023, focused on detecting the environmental DNA (eDNA) of two Species of Greatest Conservation Need (SGCN), the Rio Grande sucker (RGS) and the Rio Grande chub (RGC), in the waters of the upper Rio Grande and Rio Chama basins and of the RGS and the Chihuahua chub (another SGCN) in the Mimbres River basin. Researchers with the U.S. Forest Service (USFS) collected water samples at a total of 183 sites during the Spring of 2022, including river mainstems and tributaries, and analyzed the samples using species-specific DNA assays to detect the presence of any of these SGCN. In the Upper Rio Grande basin, RGS DNA was detected at four sample sites and RGC DNA was detected in 24 of the 45 sites, including the four sites at which RGS was detected. In the Rio Chama basin, RGS DNA was detected at four of the 62 sample sites, RGC DNA was detected at 18 sites, and there were no sites in the basin at which the two species co-occurred. In the Mimbres River basin, Chihuahua chub DNA was detected at 29 of the 76 sample sites and RGS DNA was detected at 36 sites. The RGS and RGC are under review for listing as threatened or endangered under the Endangered Species Act (ESA) and the Chihuahua chub is federally listed as threatened, so determining these species' current distributions will help inform future conservation and management actions and may help identify any key environmental issues within these species distributions, including presence of nonpoint source pollution (NPS). The project report can be found [here](#).

### **Identifying habitat usage by New Mexico populations of Rio Grande chub (*Gila pandora*) and Rio Grande sucker (*Panosteus plebeius*) and its effect on the presence and relative abundance of both species**

This project, completed in 2023, focused on assessing the habitat associations of two SGCN, the RGC and the RGS, in various streams within the jurisdictions of the Santa Fe and Carson National Forests (NFs) and Taos Field Office of the Bureau of Land Management (BLM). Researchers with American Southwest Ichthyological Researchers, LLC conducted electrofishing surveys and gathered water quality and other aquatic and riparian habitat data at 33 sites along 9 streams to characterize the needs of these two species, which are currently under review for listing as threatened or endangered under the ESA. RGC relative abundance was associated with elevation and water depth, while that of the RGS was associated with substrate, water depth and velocity, stream morphology, and the presence of non-native species. Project results will help to inform not only the listing process but future conservation and management actions for these species. The project report can be found [here](#).



*Survey site along the Rio Cebolla.  
Photo by G. Seamster.*



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## **Cimarron River Channel Morphology**

NMDGF partnered with the Cimarron Watershed Alliance, Trout Unlimited (TU), NMED, and New Mexico State Parks to continue instream improvements along the Cimarron River within the Colin Neblett Wildlife Management Area (WMA). Activities included reshaping the channel to reduce width-to-depth ratios and provide a low-flow channel, installing several rock structures to increase habitat complexity, and excavating pools to increase resting areas for trout. Activities focused on increasing over-wintering habitat for resident brown trout, holding areas for stocked rainbow trout, and improving water quality and river function. Two reaches were improved, one in 2021 (1.0 mile) and one in 2022. NMDGF and partners have secured funding through the New Mexico River Stewardship Program to complete improvements on about 7 miles of the Cimarron River within the Colin Neblett WMA. This work is planned for 2024.

## **Rio Costilla Habitat Improvements**

NMDGF will begin construction in fall, 2023 on habitat improvements along the Rio Costilla within the Valle Vidal. Work will continue habitat improvement efforts completed in 2017 and include work on the Rio Costilla from Comanche Point downstream to the terminal fish migration barrier. The project will focus on improving overwinter fish habitat to mitigate low flows associated with dam operations. Activities will include reshaping the channel to form a low-flow channel and increase habitat connectivity, installing large woody debris to increase habitat complexity, and installing rock structures to mitigate erosion and stabilize stream banks. The project dovetails with an ongoing restoration project for Rio Grande cutthroat trout, RGS, and RGC.

## **Rio Bonito Habitat Improvements - Planning**

NMDGF has partnered with the BLM Roswell Field Office on developing plans to improve the Rio Bonito near Lincoln, NM. The planning continues habitat improvement efforts completed along the lower Rio Bonito in 2018. Project activities will improve habitat conditions for resident brown trout, RGC, RGS, and stocked rainbow trout. Field surveys and preliminary designs have been completed. Compliance and final planning are ongoing, and project implementation is planned for 2024.

## **Fawn Lake Restoration - Planning**

NMDGF partnered with the Carson NF and TU to plan restoration efforts for the Fawn Lakes recreation area near Red River, NM. Fawn Lakes and the adjacent campground are highly utilized recreational areas. In 2019, a significant flood event breached the dams and caused excessive damage to the site. NMDGF and partners have begun planning efforts to restore the Red River to a functioning condition and mitigate damages and poor water quality caused by flooding. The project will likely include instream habitat improvement, off-channel wetlands, and angler access trails.

## **Willow and Whitewater Creek Instream Restoration - Planning**

NMDGF partnered with the Gila NF to develop engineering plans for instream restoration work in Willow Creek, near Mogollon, NM, and on Whitewater Creek in the Catwalk Recreation Area. Willow Creek is an important Gila trout recovery stream and both streams provide a unique angling opportunity for a native trout. The 2012 Whitewater-Baldy Fire impacted both creeks, and a watershed plan was developed by the Gila NF and the NMED for Willow Creek to address water temperature impairment. These projects will include instream habitat improvements to provide improved Gila trout habitat and improve water quality in both streams and to mitigate the temperature impairment in Willow Creek. Construction will begin in late 2023 and go into 2024 on Willow Creek.



## Bernardo Wildlife Management Area (WMA) - Wildlife Project

A wetland/moist-soil habitat enhancement project was completed on the Bernardo WMA in March of 2023. NMDGF has switched its efforts to managing 800 acres of the WMA as wetlands, moist-soil units, or seasonal roosting ponds. In addition to management prescriptions, the NMDGF continues to plant riparian and upland trees and shrubs for the benefit of migratory birds and upland deer and elk. These management and planting actions are expected to reduce NPS.



*(Photo left) Wetland in the Bernardo Wildlife Management area. C. Parris. (Photo right) Riparian vegetation planting. C. Parris.*

## Edward Sargent WMA - Wildlife Project

The NMDGF began implementing the Edward Sargent WMA Watershed Restoration Assessment and Concept Plan (Watershed Artisans, November 2021) by reconnecting flood channels and historic beaver dam areas. Using excavated lead-out channels, constructed riffles, and log jams, approximately 1.3 acres of off-channel wetland habitats were rewetted after more than a century of drying. Wetland restoration work was completed in July, 2023. These actions will improve water quality by restoring wetlands in headwater systems.



*Constructed riffle in the Edward Sargent Wildlife Management Area.*



## Upper San Antonio / Lagunitas Restoration Project

NMDGF partnered with TU on the Upper San Antonio / Lagunitas restoration project, which is designed to benefit RGCT. The headwaters of the Rio San Antonio are impaired and the stream health degraded; active intervention is needed to protect fish habitat. At present, the Rio San Antonio still supports native RGCT, which occupy less than 10% of their historic range. This project aims to enhance the existing habitat, improve the adjacent marginal habitat for the RGCT, and reduce NPS. Specifically, this project is designed to decrease the width to depth ratio of the stream, provide coldwater refuge habitat for trout, increase stream shading and baseflow, raise the water table, and reconnect and re-wet adjacent wetlands. The project is underway, with completion anticipated in fall, 2023.

*Restoration work in progress along the Upper San Antonio/Lagunitas*



## La Jara Wetland Restoration

The La Jara Wetland project is located in an important watershed at the headwaters of the Rio Grande. The valley bottom contains several miles of wet meadow and wetland habitats. These wetlands provide water and habitat for a variety of wildlife including elk, mule deer, and wild turkey. The watershed has been negatively impacted by drought, historic livestock grazing practices, and other management issues, resulting in an incised and poorly functioning wetland system and increased NPS. This project was the final step of a multi-year restoration project on the Rio Fernando that began in 2019. Objectives of this project were to reconnect the channel with the historic floodplain, improve wetland function, and increase water levels in the Rio Fernando de Taos. This project was successfully completed in November, 2022.

*La Jara Wetlands, Carson National Forest.*



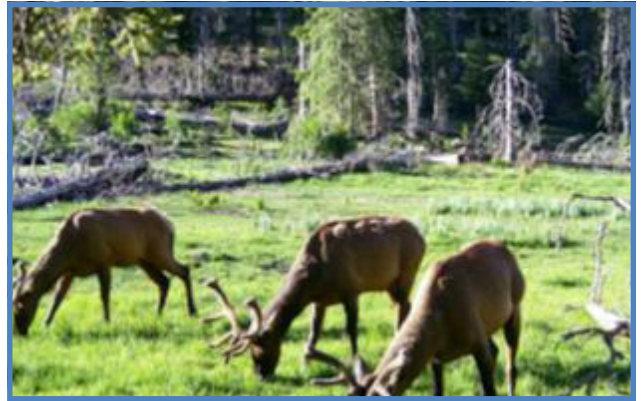
## Bear Wallow Park Springs Habitat Conservation

The Bear Wallow Park Springs habitat conservation project was designed to benefit elk, wild turkey, and a variety of other wildlife species by constructing a wildlife-friendly pipe fence around approximately five acres of the spring complex. This project was designed to protect the sensitive wetlands of Bear Wallow Park Springs from cattle grazing pressure, which can increase NPS, allowing the vegetation and hydrological function of the



springs to recover. The pipe and cable fence will require far less maintenance than the previous, dilapidated, barbed wire fence. This project was completed in October, 2022.

*Elk within the Bear Wallow Springs pipe fence enclosure, which can be seen in the background.*



### Conoco Lake

Local Lagoon (Conoco Lake) is an oasis in the desert managed by the BLM. Catfish, bass, mule deer, javelina, ducks and other wildlife rely on this area for year-round water and habitat. This project was designed to improve habitat for fish and wildlife and to reduce erosion issues, and thus NPS, around this water feature. In the first half of 2023, and to reduce degradation and erosion associated with the road, the road surface around the lake was filled. Access trails through the banks of Local Lagoon were cleared to provide anglers better and easier access to and around the lake. Approximately 40 cottonwood cuttings were planted in the project area to provide future shade, and cattails were cut and removed from the lake to increase open water habitat.



*Conoco Lake, Carlsbad Bureau of Land Management Field Office.*

### Shush Ken Fen

The Shush Ken Fen is a rare and unique wetland feature located in the Zuni Mountains on the Cibola NF. Over time, vegetation and hydrological conditions of the fen became severely degraded as a result of poor management and land practices. This reduced the fen's ability to filter NPS. This project was designed to protect the fen from livestock grazing impacts by constructing a pipe fence around the perimeter. After this project was prioritized by the Citizens Advisory Committee associated with the Habitat Stamp Program (HSP) at NMDGF, another partner, Bat Conservation International (BCI) came forward. BCI agreed to construct a pipe fence around the fen itself and brought significant outside funding to the table. The HSP funded the construction of two smaller, pipe fence enclosures around the two springs that are directly adjacent to, and feed into, the Shush Ken Fen complex and installed two cattle-guards to enable the USFS to effectively manage livestock grazing moving forward. The completion of this project will significantly improve the local availability of water and forage for wildlife.



*Shush Ken Fen, Zuni Mountains, Cibola National Forest.*



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## New Mexico Forestry Division

New Mexico's forests need proper forest management to help improve overall health, reduce insect and disease risk, reduce the impact of fires, and improve watershed and habitat health. Through careful resource management, community engagement, and productive collaborations, New Mexico Forestry Division is able to promote healthy, sustainable forests and watersheds. The primary activities undertaken by the Forestry Division to achieve these goals are watershed restoration projects, forest thinning, prescribed burning, and permitting of commercial timber sales. In Federal Fiscal Year 2023, the Forestry Division accomplished 4,748 acres of watershed restoration / thinning projects in NPS Priority Watersheds (see Table 1).

### Using BMP's to address NPS pollution

The New Mexico Forestry Division's forest resource management programs involve the application of both regulatory and voluntary silvicultural BMPs on State and private forest lands in New Mexico. Through the federally supported Cooperative Forestry Assistance Program, the New Mexico Forestry Division provides technical forest resource management assistance to landowners and recommends application of NPS pollution BMPs in all silvicultural activities. Types of technical assistance range from reforestation to harvesting of mature timber. This assistance is designed to meet a wide range of landowner management objectives. In conjunction with these programs, the New Mexico Forestry Division has technical responsibility for application of forestry practices in federally funded landowner cost share programs that includes the Forest Health Improvement Program (FHI), which specifically addresses forest health issues and forest management planning, as well as various thinning programs that address wildfire threats to communities and watersheds.

The Forestry Division provides technical assistance to partner agencies and organizations on matters related to forestry, wildland fire and watershed health. Some partnerships are formalized through legal agreements. A Cooperative Agreement between the Division and the Natural Resources Conservation Service (NRCS) provides for a shared staff position to serve as the New Mexico NRCS' State Forester, and the Division's District staff serve as Technical Service Providers to NRCS Field Offices, Area Offices, and cooperators. Agreements with the Bureau of Land Management (BLM) and the Southwestern Region of the USDA Forest Service enables the Division and BLM and USFS to collaboratively develop cross-jurisdictional, landscape scale forest and woodland restoration treatments for improving forest health and resilience and decreasing wildland fire threat to forests, woodlands and watersheds. In other cases, partnerships are formed to implement grant funded activities that promote watershed health and water quality. The Division also partners with other state agencies to support common state objectives, such as managing the New Mexico Forest and Watershed Management Coordinating Group (Coordinating Group).

### Forest and Watershed Health Coordinating Group

In 2008, Forestry created the Forest and Watershed Health Coordinating Group, an advisory body of partners engaged in restoration. The Forest and Watershed Health Plan created that year was intended to break down barriers to restoration and the Coordinating Group's objective was to collaboratively plan, fund, and implement the best restoration strategies in the right places.

In 2023, the Forest and Watershed Health Coordinating Group (FWHCG) formed a subgroup to focus on improving the consistency of work for forestry contractors. The group identified issues that cause inconsisten-



cies in forest work and is developing tools to enhance transparency and coordination around these issues. The FWHCG held an in-person working session to track progress on the implementation of the Forest Action Plan, as well as conduct group problem-solving around issues of ramping up the pace and scale of forest restoration treatments to meet the goals of the Forest Action Plan.

Forestry continues to engage in recovery efforts related to the unprecedented 2022 wildfire season. This includes the removal of hundreds of acres of hazardous trees on Forest Service land in the Hermits Peak and Calf Canyon burn scar area, as well as planned complementary treatments along public roads and utility lines on private land. Forestry has engaged with the U.S. Department of Agriculture to provide technical assistance to New Mexico landowners enrolled in the Farm Service Administration's Emergency Forest Restoration Program to restore property damaged by the fire and post-fire floods.

### Forest and Watershed Restoration Act

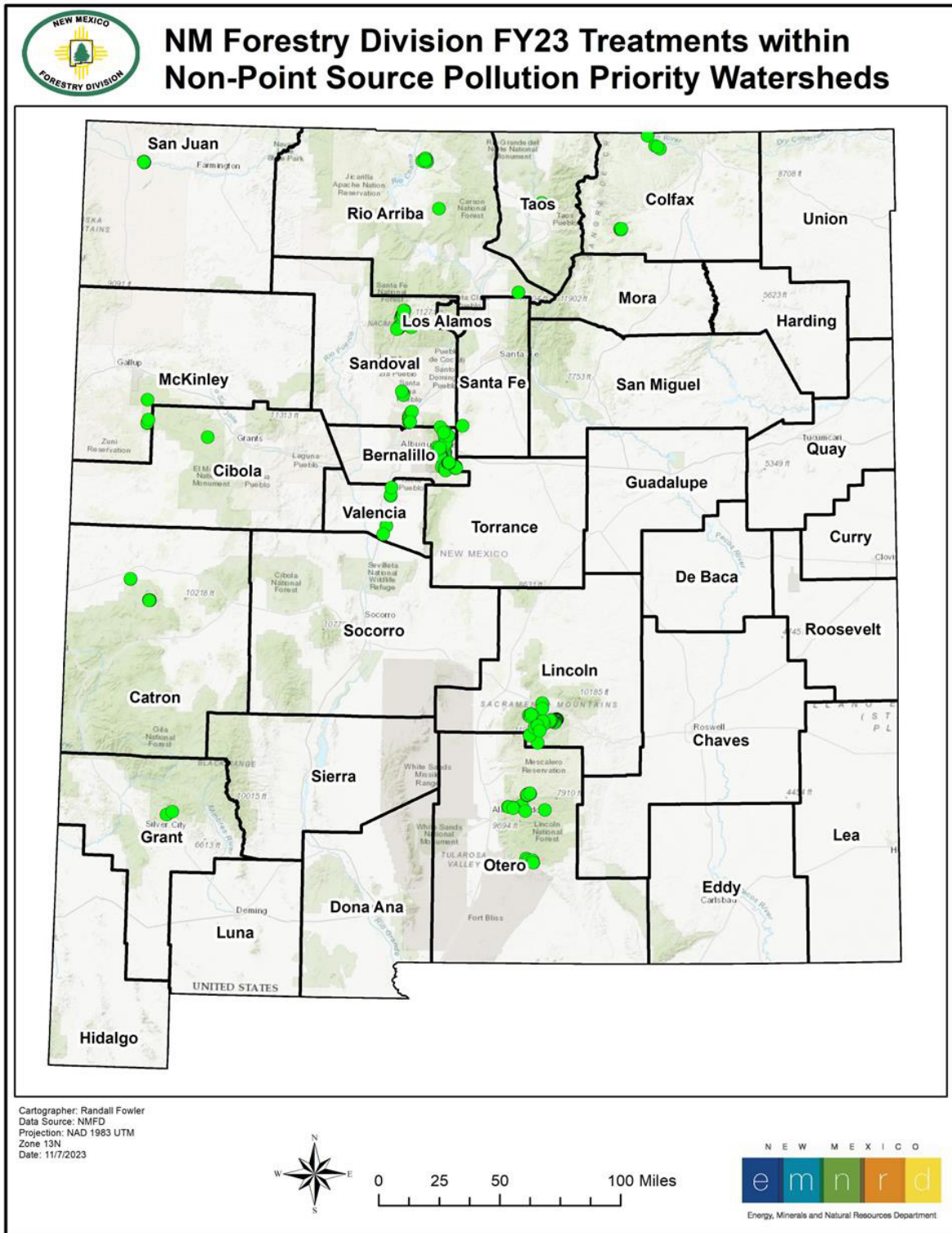
The Forest and Watershed Restoration Act (FAWRA) was created by House Bill 266 and signed into law by Governor Michelle Lujan Grisham on March 15, 2019. FAWRA allocates \$2 million annually to the Energy, Minerals and Natural Resources Department, Forestry Division with the purpose of restoring forests and watersheds in the state of New Mexico and establishes a Forest and Watershed Advisory Board to evaluate and recommend projects. The objectives of FAWRA are to prioritize and fund large-scale forest and watershed restoration projects on any lands in the state that:

- increase the adaptability and resilience to recurring drought and extreme weather events of the State's forests and watersheds;
- protect above and below ground water sources;
- reduce the risk of wildfire, including plans for watershed conservation;
- restore burned areas and thin forests;
- include related economic or workforce development projects or a wildlife conservation or a habitat improvement project.

The recurring funding provided by FAWRA gives the State the opportunity to better manage its forests and watersheds, and better protect its water resources.

*New Mexico State Land Office Forester Mark Meyers discusses forest health treatments in front of an elk exclusion fence to foster aspen regeneration in Colfax County during the FAWRA field trip on Nov. 1, 2022.*





Map of Projects Conducted by New Mexico State Forestry in 2023





State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

Table 1: New Mexico State Forestry Watershed Restoration Projects Accomplished in 2023

PROJECT NAME	LOCATION	COMPLETED ACRES	WATERSHED	TREATMENT
SAN JUAN COUNTY THREE RIVERS RESTORATION	NW Hogback Oil Field	139	Eagle Nest Arroyo-San Juan River	Fuel Break, Hazardous Fuel Reduction Around Community at Risk, Mastication, Stump and
FY23 Sandia Pueblo FAWRA Grazing	E Rio Rancho	119	Sandia Wash-Rio Grande	Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk, Maintenance
Canjilon Watershed Improvement - Phase IV	SE of Cebolla	222	Montoya Canyon-Canjilon Creek	Forest Health Thinning, Forest Stand Improvement, Lop and Scatter, Hazardous Fuel Reduction Around Community at Risk
FY22 Good 2 Fire Rehab Invasive Tree Treatment	W Valencia	6	Cedar Wash Rio Grande	Maintenance
Airport NFL	Sierra Blanca Regional Airport	389	Middle Rio Bonita	Hazardous Fuel Reduction Around Community at Risk, Mastication
Rio Bonito WUI	SW of Fort Stanton - Snowy River National Conservation Area	59	Fresnal Canyon	Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk
Trestle	Cloudcroft	4	James Canyon	Forest Health Thinning, Hazardous Fuel Reduction Around Community at Risk, Tree Felling and Removal
Southern Sacramento WUI	SE of Alamagordo	13	South Fork Tularosa Creek	Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk
Red Cabin No Name Spr	NE of Alamagordo	392	South Fork Tularosa Creek	Forest Stand Improvement, Tree Felling and Removal
FY23 MRGCD Invasive Thinning	S of Los Chaves	38	Cedar Wash-Rio Grande	Chipping, Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk, Stump and Spray
Turkey Mountains Watershed	NE of Mora	5	Cebolla Creek	Forest Health Thinning, Lop and Scatter



State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

Table 1: New Mexico State Forestry Watershed Restoration Projects Accomplished in 2023

PROJECT NAME	LOCATION	COMPLETED ACRES	WATERSHED	TREATMENT
Timberlake Commons FHI FY23	E of Navajo Nation Reservation	10	Rito Creek-Largo Creek	Chipping, Forest Health Thinning, Lop and Scatter
Stapleton FHI	N Apache National Forest	11	Arroyo de Las Baranca-Rio	Forest Health Thinning
FY23 Rio Rancho Invasive Grazing	W Bernalillo	18	Upper Rio Nutria	Fuel Break
Silva EQIP	S of Fort Wingate Military Reservation	275	Zuni Canyon	Forest Health Thinning, Forest Stand Improvement, Fuel Break, Hazardous Fuel Reduction Around Community at Risk
C Harding EQIP	W of Grants	275	Santa Ana Pueblo-Jemez River	Forest Health Thinning, Forest Stand Improvement, Fuel Break, Hazardous Fuel Reduction Around Community at Risk, Mastication
Santa Ana ROW	W of Santa Ana Pueblo	275	Cedar Wash Rio Grande	Forest Health Thinning, Forest Stand Improvement, Fuel Break, Hazardous Fuel Reduction Around Community at Risk, Mastication
Thompson EQIP	SE of Zuni Reservation	275	Canon Monte Largo-Rio Grande	Forest Health Thinning, Forest Stand Improvement, Lop and Scatter, Hazardous Fuel Reduction Around Community at Risk
FY23 Peralta Riverside Drain Unit	SW of Albuquerque	19	Canon Monte Largo-Rio Grande	Chipping, Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk
VSWCD RACA Unit 1	E of Pueblitos	19	Arroyo de Tajique	Chipping, Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk, Stump and Spray
FY23 Cibola Thinning Fuera l	W of Estancia	313	Outlet Rio Cebolla	Forest Health Thinning, Forest Stand Improvement, Lop and Scatter, Hazardous Fuel Reduction Around Community at Risk



State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

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PROJECT NAME	LOCATION	COMPLETED ACRES	WATERSHED	TREATMENT
FY23 Sandia Pueblo Invasive Thinning	NE of Corrales	69	Outlet San Antonio Creek	Chipping, Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk
Horseshoe/Virgin Forest Restoration Project	E of Los Alamos	306	Church Canyon-Jemez River	Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk
Hazardous Fuels Cuba SWCD	N of Zia Pueblo	26	Upper Tijeras Arroyo	Chipping, Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk
Cedro 3 Watershed Restoration	N of Cedro	575	Canon Gallegos	Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk, Mastication
Romero, Red Canyon, Southern Manzanos and Gallinas	S of Mountainair	6	Upper Hells Canyon Wash	Chipping, Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk
Claunch-Pinto SWCD Romero, Red Canyon, Southern Ma	S of Albuquerque	171	Upper Tijeras Arroyo	Chipping, Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk
Ciudad SWCD	E of Albuquerque	19	Headwaters San Pedro Creek	Chipping, Forest Health Thinning, Forest Stand Improvement, Lop and Scatter, Hazardous Fuel Reduction Around Community at Risk
Ciudad SWCD- Cedro, Sulphur, Hondo	E of Albuquerque	47	Canon Gallegos	Chipping, Forest Health Thinning, Forest Stand Improvement, Lop and Scatter, Hazardous Fuel Reduction Around Community at Risk



State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

Table 1: New Mexico State Forestry Watershed Restoration Projects Accomplished in 2023

PROJECT NAME	LOCATION	COMPLETED ACRES	WATERSHED	TREATMENT
Claunch Pinto SWCD Barranco	E of Albuquerque	201	Juan Thomas Canyon	Chipping, Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk, Mastication
Ciudad SWCD Open Space Restoration	E of Kirkland Air Force Base	77	Upper Bear Creek	Forest Health Thinning, Forest Stand Improvement, Lop and Scatter, Hazardous Fuel Reduction Around Community at Risk, Prescribed Burn
Joint Chiefs' Bear Creek to Signal Peak CRP	W of Pinos Altos	135	Sandia Wash-Rio Grande	Hand Thin, Lop and Scatter
El Caso Restoration	E of Quemado Lake	46	El Caso Spring Canyon	Forest Stand Improvement, Lop and Scatter, Mastication
FY23 Cemetery Burn Restoration and Invasive Tree	S of Belen	8	Town of Jarales-Rio Grande	Stump and Spray, Tree Felling and Removal
Pinos Altos BLM Lands	N of Silver City	133	Upper Bear Creek	Hand Thinning, Stump and Spray, Lop and Scatter, Hazardous Fuel Reduction Around Community at Risk
Sandia Burn Restoration Follow-Up	SW of Sandia Pueblo	53	Sandia Wash-Rio Grande	Forest Health Thinning, Forest Stand Improvement, Hazardous Fuel Reduction Around Community at Risk, Stump and Spray
TOTAL COMPLETED ACRES = <u>3,362</u>				



## United States Forest Service

### Cibola National Forest and National Grasslands

The Cibola National Forest and National Grasslands (Cibola NF&NGs) implemented several projects within New Mexico that improved nonpoint source pollution during the 2023. These projects included riparian restoration, vegetation treatments such as prescribed burning and thinning, and continued work to control salt cedar and promote native revegetation along the Canadian River in Mills Canyon. Additionally, the Forest has implemented standards and guidelines from the recent Forest Plan Revision, leading to improved watershed management. Improved watershed conditions lead to reduced sediment movement and improved water quality. Photos from these areas, and other projects conducted on the Forest over the years, can be seen at this website, [https://www.flickr.com/photos/cibola\\_nfg/](https://www.flickr.com/photos/cibola_nfg/).

#### Riparian and Fen Restoration – Shush Kin Fen Riparian Project

Subwatershed: Agua Medio-Bluewater Creek (HUC 130202070201)

1. Completed two riparian fences around several springs and a small tributary of Bluewater Creek near the Shush Kin Fen.
2. Completed pipe fence to protect the Shush Kin Fen and restore its ecological services such as water sustainability and water filtering.

AU ID: NM-2107.A\_01 Bluewater Creek (Perennial part Bluewater Reservoir to headwaters) Listed for Temperature.

The project area is in the Zuni Mountains on the Mt. Taylor Rander District. Project area is located on a tributary of the Bluewater Creek. The Shush Kin Fen and nearby riparian areas provide habitats for a variety of riparian vegetation that play an important role in nutrient recycling, trapping eroding soil, reducing temperatures, and filtering out polluting chemicals such as nitrates.

In 2023, construction of a fence around the fen was completed by Bat Conservation International (BCI) and fencing around streams/springs was completed by New Mexico Game and Fish. Fencing around the fen and surrounding riparian areas will allow for the vegetation, soils, and other hydrologic features to recover by

reducing the amount of ungulate grazing and trampling. Additional work is planned to include hummock restoration, and headcut control, stream stabilization.



*Shush Kin Fen and new pipe fence - 2023*



## Canadian River Riparian Restoration

Subwatershed: Canon Vercere-Canadian River (HUC 110800030505)

### 1. Continued maintenance of Salt Cedar Control and Replanting (part of the Canadian River Riparian Restoration Project (CRRRP))

In FY23, maintenance continued salt cedar treatments at Mills Canyon in partnership with the Canadian River Riparian Restoration Project. The Canadian River Riparian Restoration Project (CRRRP) is a collaboration of eight Soil and Water Conservation Districts in northeastern New Mexico (<https://www.nmacd.org/programs>). The CRRRP’s goal is to restore the watershed of the Canadian River, both on the main stem and on its tributaries, to a healthy productive state that will provide native habitat for a variety of wildlife and improve water for communities, agriculture, and recreation throughout the course of the watershed. Riparian and upland plantings were also monitored to assess the success of riparian plants and additional needs.



*Cottonwood plantings on the Canadian River at Mills Canyon.*

## Vegetation Treatments (prescribed fire and vegetation treatments)

Prescribed Fire: K-44 RX	Middle East Rita Blanca Creek (HUC 110901030104) – 491 acres
Prescribed Fire: K-74 RX	Gyp Arroyo (HUC 111001010307) - 121 acres
	North Canadian River (HUC 111001010309) – 195 acres
Prescribed Fire: Copperton RX-2	Agua Medio-Bluewater Creek (HUC 130202070201) – 290 acres
Prescribed Fire: Copperton RX-1	Agua Medio-Bluewater Creek (HUC 130202070201) – 1,037 acres
	Ojo Redondo-Bluewater Creek (HUC 130202070205) – 4 acres
Thinning: Black Mesa	Guadalupe Canon-Rio Puerco (HUC 130202040401) – 31 acres
	Canon del Camino-Rio Puerco (HUC 130202040403) – 29 acres
	Arroyo Seccion (HUC 130202050702) – 88 acres



## State of New Mexico Nonpoint Source Management Program 2023 Annual Report

Vegetation treatments such as prescribed fire and thinning occurred across the Cibola NF&NG in FY23 as restoration activities continue to be planned and implemented. In areas where tree densities are out of the range of variability, these treatments reduce the risk of uncharacteristic fire with high intensity effects. High intensity fire effects include high sedimentation rates, turbidity, erosion, and streambank erosion. Vegetation treatments reduce the potential for these effects and improves overall watershed condition. In addition, prescribed fire was implemented to improve watershed condition, increase resiliency to wildfire, and improve ground cover. These

benefits are expected to lead to improvements in water quality by reducing sediment inputs over the long term and improving riparian condition. Watershed condition in affected watersheds is assessed using the Watershed Condition Framework, a method used by the USDA Forest Service (<https://arcg.is/1LKDWv>).



*Prescribed fire activities on the Cibola National Forest, New Mexico.*



## Gila National Forest

The Gila National Forest (GNF) implemented projects in fiscal year 2023 that were designed to improve water quantity, water quality, and reduce the risk of high intensity wildfire. The following information highlights some of these projects and provides updates on future projects.

### Ongoing Restoration Work

#### Tularosa River/National Forest System Road 233 (Reserve Ranger District)

The Tularosa River is listed under the CWA Section 303d for excessive temperature and turbidity. This summer work on the Tularosa River/Forest Road 233 was implemented and completed. The goal of this project was to replace the existing hardened low water crossing and restore the wetland existing downstream of the road crossing. The previous road crossing was not conducive for upstream aquatic organism passage for numerous aquatic species, including numerous species of conservation concern. The original crossing fragmented approximately 15 miles of aquatic habitat. The wetland located just downstream of the low water crossing was also de-watering after several events led to downcutting and bank erosion. Several species benefitting from the new articulated concrete road crossing include the Loach Minnow, Speckled Dace, Longfin Dace, Sonora Sucker, Desert Sucker, Narrow-headed garter snake, Arizona toad, and the Chiricahua Leopard frog.

This road is critical to the national forest, as it is the only road access to the Eagle Peak Lookout, an essential resource for fire activities on the north end of the forest. This road also serves as an important hunting and recreation access route.

Work began in May and was completed in August. The National Stream and Aquatic Ecology Center was the lead on the wetland restoration and Federal Highway Administration-Central Federal Lands was the lead

on the stream crossing and environmental analysis. Overall, this project was a success with many lessons learned after several events – including the exceedance of take (mortality) of the Narrow-headed garter snake. The Forest has secured additional funding to complete remaining restoration work in FY24.

*New articulated concrete low water crossing at NFSR233.*







*YCC crew and Gila NF employees planting riparian vegetation at Cherry Creek.*

## Cherry Creek Stream Restoration

The 2014 Signal Fire burned the headwaters of Cherry Creek which resulted in watershed instability for several years post-fire. Most of the restoration activities occurred in FY22, but efforts continued this year with riparian vegetation planting days. This was a joint effort between the Gila NF staff and a local Youth Conservation Corps (YCC) group from the Aldo Leopold Charter School. Students learned about the various plants and the benefits they would provide to improve channel stability and aquatic habitat.

## Black Fire Restoration

Knowing that this landscape-scale burn scar would be too great of an undertaking for the Forest to take on by themselves, the

Gila NF entered into a multi-million-dollar agreement with Bat Conservation International (BCI) to help with the restoration efforts. Within this agreement, tasks such as aerial seeding, development of the Black Fire Watershed Restoration Action Plan (WRAP), writing the NEPA, implementation of essential projects outlined in the WRAP, road work, and conducting public outreach and education were outlined and agreed upon between the two agencies. Twenty watersheds will be included within the WRAP and receive forest priority for work to be done. Aerial seeding of 7,617 acres was completed late this summer on steep slopes that burned at high severity to accelerate the recovery of protective ground cover and prevent further erosion into the watersheds. The Watershed Restoration Action Plan is currently being developed with the goal of completion early in 2024.



*Dry Blue Creek.*

## Upcoming Projects:

### Dry Blue Watershed

The Forest applied for and received funding through the Collaborative-Based, Aquatic-Focused, Landscape-Scale Restoration (CALR) program to restore water quality and fish passage in the Dry Blue watershed. This watershed is within the Luna Restoration Project area and has several essential projects within the Escudilla Watershed Restoration Action Plan (WRAP) that will be addressed through this funding. Some of the essential projects



include road re-routing and hardened stream crossings, stream restoration/riparian improvement, fencing off springs, and meadow enhancement. Wild Arizona and National Forest Foundation are current partners that will work to complete several of the essential projects outlined in the WRAP.

Additional funding is also in place for replacing cross fencing at an existing riparian enclosure. The improvements to the road will help to reduce sediment input into the watershed's drainage network and therefore improve water quality. Reduction of sediment and a return to natural channel morphology also improves habitat for aquatic species, including the Loach Minnow, which is a species of concern in this watershed.

### **Willow Creek/Little Turkey Creek Stream Restoration**

Work will continue to occur in Willow Creek and Little Turkey Creek in FY24. Project work will consist of riparian and stream restoration to restore the stream morphology and reverse water quality temperature impairments listed under the CWA Section 303d. The projects in Willow Creek will also support recovery populations of the Gila Trout by improving geomorphic stability of the stream and increase riparian cover. There are several funding sources and projects occurring in these two streams – those of which include NM River Stewardship funding (Trout Unlimited application), Water Trust Board Funding (San Francisco Soil and Water Conservation District Application), and the NM Department of Game and Fish.



*Volunteers at Little Turkey Creek, a tributary of Willow Creek.*

### **Centerfire Creek**

Restoration work with Keystone Restoration Ecology will begin in FY24.

### **Stone Creek**

Restoration work with Bat Conservation International (BCI) will begin in FY24.

### **Gilita Creek Watershed**

The Gilita Creek Watershed will have a signed Watershed Restoration Action Plan (WRAP) in FY24. A variety of essential projects will be outlined and implemented. Funding is in place and the Forest will be partnering with Trout Unlimited. Additional funding is also foreseen to be acquired in FY24.



## Santa Fe National Forest

During fiscal year (FY) 2023, the [Santa Fe National Forest](#) (SFNF) continued to implement projects that made progress towards meeting and maintaining state water quality standards as well as activities that contributed to nonpoint source management. Projects were designed to improve water and soil quality, water quantity, riparian conditions and aquatic habitat. Some of these projects are described below.

### Pecos River at Cowles Restoration Project (Nonpoint Source Priority Stream)

The [Pecos River at Cowles Restoration Project](#) on the Pecos/Las Vegas Ranger District was successfully implemented through a partnership with the [Upper Pecos Watershed Association](#) and funding through the [New Mexico Environment Department's River Stewardship Program](#). The purpose of the project was to improve stream stability and aquatic habitat by restoring channel dimensions and installing habitat structures on approximately 1,000 linear feet of the Pecos River at Cowles.

The restoration design included several components to help improve channel stability and aquatic habitat including cross vane weirs, rock vanes, log barbs, stabilizing rock, and bankfull benches which were installed along approximately 800 feet of the stream to narrow the channel and reduce bank erosion. Several fish habitat structures were constructed including rock clusters, mini rock weirs and log bank buildout structures. Off-channel aquatic habitat was restored along the Pecos River within the project area through construction of a side channel, fish rearing pond and associated wetland habitat.



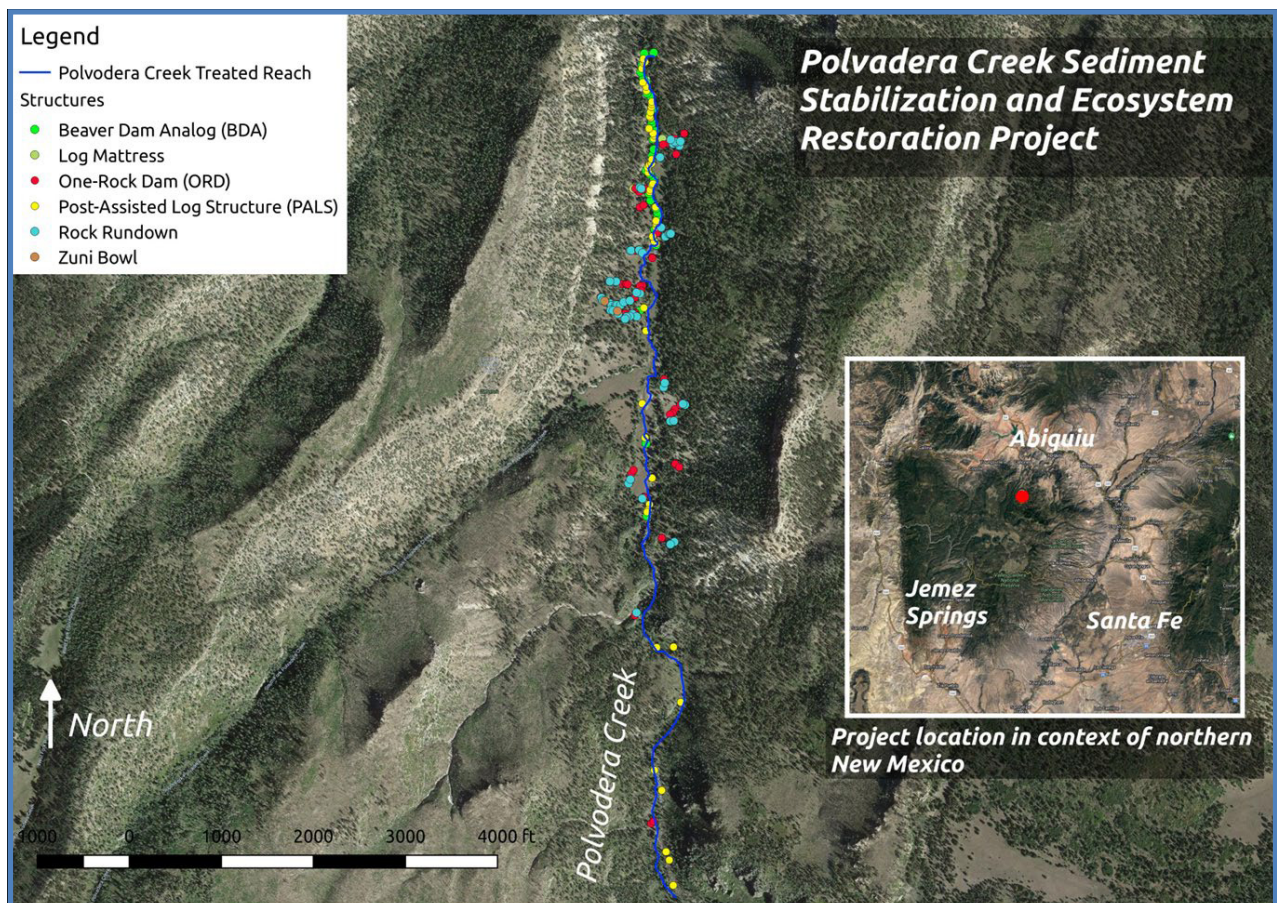
*Photo above provided by Devin Kennemore of Pathfinder Environmental. This photo depicts the upper half of the project area looking downstream.*



## Polvadera Creek Sediment Stabilization and Ecosystem Restoration Project (Española Ranger District)

Restoration actions supporting the [Polvadera Creek Sediment Stabilization and Ecosystem Restoration Project](#) were implemented by [Rio Grande Return](#), a local nonprofit organization dedicated to the protection and restoration of streams, wetlands and associated wildlife of the Southwest and funded through a [National Fish and Wildlife Foundation](#) (NFWF) grant.

During 2023 approximately two and half miles of stream were treated through construction of beaver dam analogues (BDA), post assisted log structures (PALS) and planting of willow. These types of treatments promote channel complexity, fish habitat, and restore the process and function of the riparian corridor. Additionally, they serve to capture sediment, elevate the water table, increase channel complexity, and create refugia for fish and other aquatic life. Work within tributaries was completed through construction of Zuni bowls, log mattresses, rock rundowns and one rock dams. These structures are designed to limit erosion, promote sheet flow, and aggrade sediment within eroding gullies and alluvial fans. All structures were built using on-site and natural materials.



*Project map provided by Rio Grande Return depicts structures implemented in 2023.*



## Rito Penas Negras Stream Restoration and Erosion Mitigation Project (Nonpoint Source Priority Stream)

The SFNF has partnered with the [National Forest Foundation](#) and Rio Grande Return to implement restoration and stabilization actions within Rito Penas Negras since 2021. This project builds upon past actions funded through the New Mexico Environment Department and other partner organizations.

[The Rito Penas Negras Stream Restoration and Erosion Mitigation Project](#), on the Cuba Ranger District of the SFNF is designed to stabilize the degrading channel and associated meadow; improve wet meadow and wetland health and riparian functionality; and re-establish and protect riparian vegetation. The restoration will continue to occur in phases over multiple years. The initial stage of the project is the implementation of structures designed to restore the processes of wood accumulation, stream floodplain connectivity, and mimic beaver dam activity. During 2023 an additional 100 structures were built which included BDAs, PALS and large woody debris structures. Additionally a 26-acre enclosure was constructed and approximately 4,000 willows were planted. To date more than five stream miles have been treated with over 350 structures implemented. Colorado State University conducted a sampling of fish species within the project area and found Rio Grande Chub and Sucker. No non native species were documented.



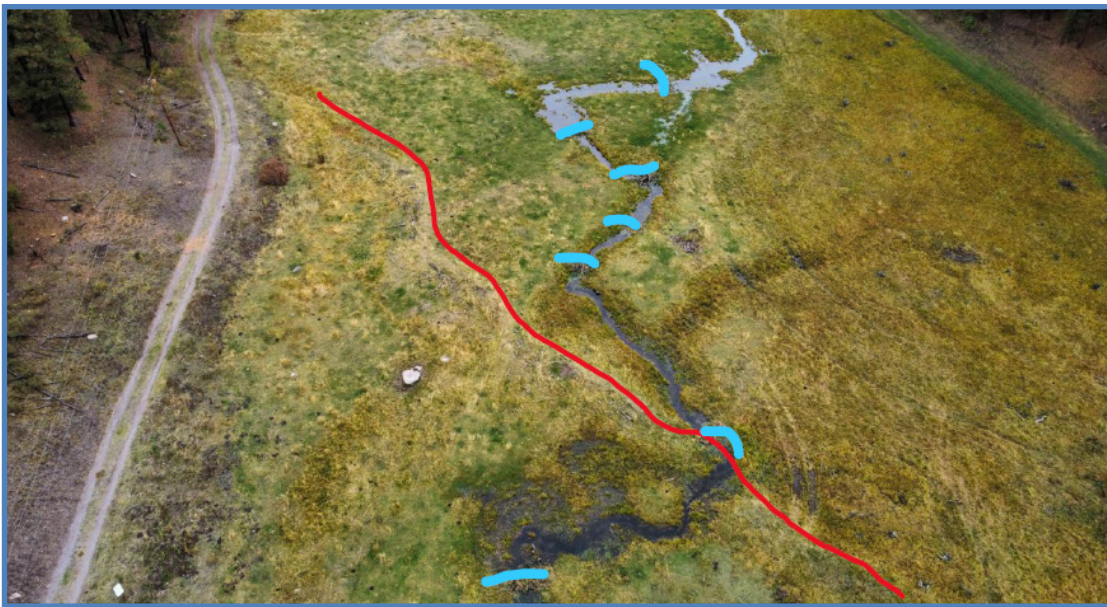
*Aerial view of a portion of the Rito Penas Negras project area. Willow can be seen in this photo which come from the 2011 effort to restore the riparian area. A wetland in the center of the photo can also be observed by the noticeable change in color from the surrounding uplands. Instream structures facilitated the restoration of this sedge dominated riverine wetland.*



## Upper Rio Cebolla Riparian Restoration Project (Nonpoint Source Priority Stream)

Restoration actions on the [Upper Rio Cebolla Riparian Restoration Project](#) located on the Jemez Ranger District upstream of the Seven Springs State Fish Hatchery were accomplished by Rio Grande Return and funded through a NFWF grant. Objectives of this riparian restoration project include: reducing channel erosion and incision, improving aquatic habitat condition, promoting native riparian vegetation, improving streambank stability and promoting healthy wetlands.

Large woody debris structures, BDAs and PALS were built out of locally available material including small diameter trees, conifer limbs, willow cuttings, rocks, duff, mud, and gravel. BDA locations were selected to accomplish a variety of objectives, including re-wetting abandoned channels, facilitating overbank flow, increasing meander length and flood attenuation. PALS and large woody debris were placed to help facilitate floodplain reconnection through meander lengthening and channel aggradation, promote flow complexity, and provide habitat for aquatic species. Approximately 80 structures were built along one stream mile.



*Aerial view of a portion of the Upper Rio Cebolla Project area. The red line indicates a relict beaver dam. The blue lines show where structures have been implemented. Notice the ponding, overland flow and complexity that these structures are restoring.*

## Stream Temperature Monitoring Program

During FY23 the SFNF collected stream temperature data for multiple streams to help inform current temperature trends and ongoing and future restoration projects. These trends will allow the forest and partners to actively manage cold water species and take proactive action to preserve current populations and reintroduce indigenous cold water species populations where conditions allow. The SFNF currently manages 19 stream temperature data collection sites including two on Polvadera Creek, nine on Rio Cebolla, four on Rio de las Vacas and four on San Antonio Creek.



## Bureau of Land Management (BLM)

### Rio Puerco Field Office

#### Rio Puerco Field Office Begins Dam Repair Work

The Rio Puerco Field Office (RPFO) began work on repairing several dams near San Luis, NM and the Ojito Wilderness Study Area (WSA), from February 6th, 2023 to February 21st, 2023. These structures are part of a series of dams constructed in the 1950s and 60s in an attempt to control the extensive erosion along the Rio Puerco and its tributaries. Since that time, the majority of these structures have deteriorated or are no longer operational. The ones that do remain still provide temporary water sources for wildlife and livestock. However, these dams are constantly being overrun by plant species such as saltcedar (*Tamarisk spp.*) and Russian Thistle (*Salsola Tragus*). The plants degrade the dams by digging their roots into the structure, creating voids that could be exploited by burrowing animals or water. If left unchecked, the voids could form a breach in the dam which could lead to roads being washed away and increase the risk of erosion to other areas.

The first objective was to treat the dams near San Luis, NM. While located next to the Rio Puerco, the dams are situated at the headwaters of the Rio Salado which serves as a tributary to the Jemez River. These dams were covered by saltcedar and fourwing saltbush (*Atriplex canescens*) and were showing signs of erosion. With the help of the RPFO's force account team, the overgrown vegetation was removed and placed downstream on the adjacent plants to create a sheltered area for wildlife use. The structures were then regraded to remove any rill erosion or animal burrows that had developed since it was last maintained. In one instance, a develop-

ing gully had to be filled in to prevent excess sedimentation from filling in the reservoir. The next task was to repair a water-control structure (also known as a controlled breach with gabion baskets) that had started to degrade on its western edge. The dam is situated just upstream from the Ojito Wilderness and the main road that allows the public to access the region. Large burrows, vegetation, and signs that water had tunneled right through the dam posed a risk that another flood could wash out the dam, and with it, a major route around the Ojito Wilderness. The force account team began by smoothing and grading the outlet and eastern side of the dam where erosion had not been as severe. Afterwards, the western side of the dam was cleared of vegetation and sediment was dug out to find the



*A large majority of earthen dams, such as this one, are experiencing extensive vegetation encroachment as well as significant wind and water erosion. When fully functioning, they can provide recreational opportunities as a result of the wildlife habitat they provide.*



*Photo above, Paul Waldo and his team remove fourwing saltbush from Ilfeld Dam No.6. Immediately downstream is the road bordering the Ojito Wilderness.*

*Photo right, The RPFO's Force Account Team in the beginning stages of repairing Ilfeld Dam No. 6*



extent of the erosion. Ultimately, the eroded parts of the dam were rebuilt by laying down a layer of sediment, or “lift”, grading the lift into the dam, and repeating the process until the force account team had reached the crest.

By keeping these dams in operational order, not only will they help mitigate high flow events, but they will also provide habitat for waterfowl and other wildlife, and create temporary water sources for livestock.

## Roswell Field Office

### Roswell Field Office Constructs Streambank Stabilization Structures on the Rio Bonito

In April, the BLM New Mexico Roswell Field Office hydrology and operations staff constructed and installed streambank stabilization structures near Lincoln, New Mexico, on the Rio Bonito Acquired Lands. The streambank stabilization structures stabilize and protect streambanks that are susceptible to erosion. High water flows in the Rio Bonito had eroded the riverbank and destroyed a portion of the historic Titsworth Irrigation ditch. Continued high flows were threatening remaining portions of the ditch, a water gap fence downstream, a fence corner and a buried irrigation pipeline located 20 feet upslope. The average width of the stream is 10-15 feet with 10-foot-tall banks at the project location. BLM New Mexico Aquatics funds paid for the materials, equipment, and manpower for the project.

The plan was to stabilize the streambank by installing 60 feet of a longitudinal peaked stone toe protection (LP-STP) structure with a crest height built to five feet above base flow water surface elevation. Two buried rock tie-back short dikes keys were installed that connected the structure perpendicular to the bank and one buried long tie-back dike that was angled 30 degrees away from the bank upstream. This will prevent the stream from getting behind and flanking the LPSTP structure.

In addition, the project used well-graded, self-adjusting stone to construct the LPSTP and the three keys. The





State of New Mexico Nonpoint Source Management Program  
2023 Annual Report

LPSTP was keyed into the bank both upstream and downstream. The well-graded stone in the LPSTP is used so it will readjust and move into and armor new scour holes that are formed in the stream at the toe of the structure. Six single-stone bendway weirs were installed on the edge of the LPSTP at the base flow water surface elevation and will move the thalweg out away from the toe of the bank, increase stream roughness, and reduce toe scour. The structures will mitigate damage to the water gap and fence corner and the Titsworth Irrigation ditch and buried pipeline. They will also improve riparian and wildlife habitat, decrease erosion and nonpoint source pollution, and decrease silt and sedimentation to the Rio Bonito. The Roswell Field Office will continue to monitor and maintain the structures to minimize erosion and damage.



*In April, the BLM New Mexico Roswell Field Office hydrology and operations staff constructed and installed streambank stabilization structures near Lincoln, New Mexico, on the Rio Bonito Acquired Lands. This pre-project photo looks downstream and shows the eroded bank, water gap fence and buried irrigation pipeline located approximately 20 feet to the right.*



*In April BLM Heavy Equipment Operator Phillip Hogwood installs well graded stone to create the longitudinal peaked stone toe protection structure and also a tie-back dike erosion control as part of a BLM Roswell Field Office project along the Rio Bonito, Lincoln, New Mexico.*



State of New Mexico Nonpoint Source Management Program  
2023 Annual Report



*Installation of an erosion control tie-back dike as part of a BLM Roswell Field Office project along the Rio Bonito.*



*Installation of a single-stone bendway weir as part of a BLM Roswell Field Office project along the Rio Bonito.*



*This post-project photo shows finished stream-bank stabilization structures and erosion control structures that the BLM Roswell Field Office installed along the Rio Bonito.*



