State of New Mexico Nonpoint Source Management Program

2008 Annual Report

New Mexico Environment Department
Surface Water Quality Bureau
Watershed Protection Section

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Nonpoint Source Management Program

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Executive Summary

This annual report to the United States Environmental Protection Agency provides an overview of Clean Water Act (CWA) section 319(h) Nonpoint Source Management Program related activities conducted in New Mexico in 2008 by the Watershed Protection Section of the New Mexico Environment Department Surface Water Quality Bureau. Polluted runoff, or nonpoint source (NPS) pollution, is defined by the EPA as "caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made pollutants into lakes, rivers, streams, wetlands, estuaries, and other coastal waters and groundwater. Atmospheric deposition and hydrologic modification are also sources of nonpoint source pollution." Nonpoint source 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 activities such as: outreach and education, training, implementation of best management practices (BMPs), and monitoring to assess implementation efficacy.

Milestones are an integral part of the NPS Management Program and a requirement under section 319(b)(2)(c) of the CWA. These were developed to focus the NPS Management Program's direction and to implement the strategy for resolving NPS pollution problems throughout the state. Milestones achieved in 2008 include: reporting EA/EIS reviews, reporting CWA section 401 actions and certifications, updating our Best Management Practices Resource Manual, a thorough revision of the NPS Annual Report, and numerous outreach activities. Coordination between the U.S. Forest Service and the Watershed Protection Section (WPS) also continues to be an integral part of the NPS Management Program and has facilitated cooperation on many NPS pollution reduction projects. The WPS believes the most important milestone achieved for the NPS Management Program is the ongoing cooperative work with outside resource management agencies and citizen watershed groups to develop and implement sound approaches to reducing nonpoint source pollution in New Mexico. Over the past several years, the WPS has supported planning efforts and the formation of sustainable watershed-based organizations in many areas of New Mexico. As a result, approximately 32 watershed-based plans have been completed with implementation of some plans well underway. In addition to these milestones, a thorough revision of the Nonpoint Source Management Program guiding document began in 2008.

Load reductions were calculated for all of the 319(h) projects administered by the Watershed Protection Section that concluded in 2008 where BMPs were implemented. The reductions were determined by using specific models designed to calculate reductions based on the BMPs implemented. Over 22 load reductions were reported on the 16 projects which were completed in 2008.

Introduction

This annual report to the United States Environmental Protection Agency (EPA) provides an overview of nonpoint source management related activities conducted in New Mexico in 2008 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 nonpoint source pollutant loading and improvements to water quality of New Mexico watersheds as required under section 319(h)(11) of the Clean Water Act (CWA). The majority of funding for projects listed in this report is provided by 319(h) grants awarded to NMED by the EPA. Additional activities included are projects implemented by the WPS Wetlands Program, CWA section 401 activities, N.M. Mining Act activities, and nonpoint source projects implemented by other natural resource agencies outside of NMED.

What is Nonpoint Source Pollution?

Polluted runoff, or nonpoint source pollution, is defined by the EPA as "caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made pollutants into lakes, rivers, streams, wetlands, estuaries, and other coastal waters and groundwater. Atmospheric deposition and hydrologic modification are also sources of nonpoint source pollution."

Clean Water Act Section 319

Nonpoint source (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, implementation of best management practices (BMPs), and monitoring to assess implementation efficacy. Section 319 contains three main strategies for addressing NPS pollution:

- ◊ Requires states to prepare assessment reports of their NPS pollution problems.
- ◊ Requires states 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.

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

Two sections of the CWA prior to the addition of section 319 that were designed to manage both point sources and NPS 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 the Integrated Clean Water Act §303(d) / §305(b) Report.

New Mexico's Nonpoint Source Management Program

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 NPS Management Program planning document (NPS Management Plan). Our ultimate goal is to manage a balanced program that addresses both existing impairments (as listed in the 303(d) list) and prevents future impairments. An important aspect of the NPS Management Plan is the watershed based plan (WBP) approach as outlined in the guidance provided in the *Nonpoint Source Program and Grants Guidelines for States and Territories* (Fed Reg. Vol 68, No. 205 Sec. III, D a-i). As a result, the NPS Management Plan focuses on the following:

- ◊ Implementing Total Maximum Daily Loads (TMDLs).
- ◊ Building partnerships by identifying and engaging stakeholders.
- ◊ Identifying and partnering with local, state, and federal agencies.
- ◊ Develop WBPs with key stakeholders for coordinating watershed restoration efforts.
- ◊ Implement BMPs to address NPS pollution based on recommendations of an accepted WBP.

Riparian vegetation re-growth in an exclosure on Commanche Creek to address a temperature TMDL.

SWQB Program Updates

Watershed Protection Section

The WPS underwent significant changes in 2008. The Program Manager passed away unexpectedly after a brief illness and there was a minor reduction in staff. As a result, some workload allocations were redistributed, and both the incoming Program Manager and staff had to learn and adjust to changing program requirements in a short period of time. A thorough review of ongoing projects was conducted to assess both individual project and programmatic progress and success. A comprehensive review of core guiding documents was undertaken including the *Nonpoint Source Program Grants and Guidelines for States and Territories* (Fed Reg. Vol 68, No. 205, October 23, 2003), the recently published *EPA Handbook for Developing Watershed Plans to Restore and Protect our Waters* (March 2008), the *2006-2011 EPA Strategic Plan Goal 2 – Clean and Safe Water*, and the EPA's *National Water Program Guidance Fiscal Year 2008*. The WPS management felt this review was critical for future development of New Mexico's NPS Management Program.

NPS Management Program Update

The current NPS Management Plan was completed in 1999, before completion of most TMDLs in New Mexico, and prior to the release of the guidance documents listed above. The NPS Management Plan is a required element of the 319 program and critical to the program's success. As a result, the WPS initiated a complete revision of the state's NPS Management Plan in 2008. The four documents cited above will guide this process to identify appropriate BMPs, determine appropriate strategies to implement NPS pollution reduction, and develop program milestones necessary to demonstrate achievement of both short and long term goals. Specifically, the objectives outlined in the *National Water Program Guidance Fiscal Year 2008* developed under the *2006-2011 EPA Strategic Plan - Goal 2: Clean and Safe Water* are critical to this process.

Sub-objectives under this goal are the Performance Activity Measures (PAMs) WQ-10 and SP-12 (formally known as the Watershed Improvement Measure or Measure "W"). The PAMs are utilized to demonstrate water quality improvement in waterbodies listed as impaired on the 303(d) list. Among the changes contemplated is a shift in priorities from addressing NPS pollution issues within large "Category I watersheds" which have 8-digit Hydrologic Unit Codes (HUCs) to addressing NPS portions of TMDLs in 12 digit HUCs. An effectiveness monitoring program will also be instituted to supplement the SWQB's existing monitoring program, which is primarily focused on assessment of water quality relative to New Mexico state standards and TMDL development. These changes are critical to assess improvements in water quality and waterbody restoration under PAMs WQ-10 and SP-12.

In the fall of 2008, the WPS contacted nine federal agencies, eight state agencies, and eight non-governmental organizations representing local governments or industry groups for informal consultation prior to releasing a draft of the NPS Management Plan for public comment. The main motivation for involving these organizations was that they each will have a role in implementing the plan. A February 2009 release date for public comment is anticipated.

NPS Management Program Milestones

Milestones are an integral part of the NPS Management Program and a requirement under section 319(b)(2)(c) of the Clean Water Act. These were developed to focus the NPS Management Program's direction and implement our strategy for approaching and resolving NPS pollution problems throughout the state. The following table presents milestones from the NPS Management Program that were achieved in 2008.

Milestone	Timeframe	Status
Report EA/EIS Reviews	Annually	52 reviews completed in 2008
BMP Resource Manual revised and updated	Ongoing	updated and revised in 2008
Report CWA section 401 actions	Annually	submitted in 2008 NPS report
Process 401 certifications	Annually	submitted in 2008 NPS report
Report NPS Program Milestones	Annually	submitted in 2008 NPS report
NPS Annual Report reviewed and revised	2001	2001, 2005, 2008
Number of staff trainings	Annually	7
Outreach - schools and water fairs attended	Annually	14
Outreach - site tours/demo projects conducted	Annually	5
Outreach - workshops and info sessions held	Annually	9
Outreach - Watershed Forum (workshop-info)	2008	2008

There are several additional accomplishments from 2008 that align with milestones from the NPS Management Plan. On Febraury 26th, the WPS held its annual planning meeting with the U.S. Forest Service. This meeting was held to provide updates on NPS pollution reduction and watershed restoration activities conducted by each agency during the prior year and to present proposed projects for the current year. This coordination has been an integral part of the NPS Management Program and has faciltiated cooperation on many NPS pollution reduction projects.

The WPS has also forged a collaborative relationship with the New Mexico Department of Transportation (NMDOT) in the past several years. This collaboration led to the formation of a joint NMDOT/NMED Task Force. The Task Force conducted two "On The Road" meetings in 2008 bringing WPS staff and NMDOT staff in NMDOT field offices together to discuss topics such as CWA section 404/401 and composting techniques for compliance with NPDES stormwater regulations. For more information on the NMDOT/NMED collaboration please see page 31.

The most important NPS Management Plan milestone achieved in 2008 is the ongoing cooperative work with outside resource management agencies and citizen watershed groups to develop and implement sound approaches to reducing NPS pollution in New Mexico. Over the past several years, the WPS has supported planning efforts and the formation of sustainable watershed-based organizations in many areas of New Mexico. As a result, approximately 32 watershed-based plans have been completed and implementation of some plans is well underway. The WPS is still firmly committed to a stakeholder driven watershed based approach to solving water quality problems, and recognizes the value of watershed- based plans in guiding these efforts.

Outreach Milestone Spotlight

New Mexico Watershed Forum- From Mountaintop to River Bottom: Restoring New Mexico's Watersheds

The first New Mexico Watershed Forum took place from September 30 to October 2, 2008. The forum began with two days of speakers, poster presentations, breakout sessions, panel discussions, and workshops at the mid-town Marriot in Albuquerque. The final day was spent touring project sites in the Rio Grande and Jemez watersheds. The forum provided opportunities to learn about watershed restoration techniques, increase collaboration and communication about watershed restoration, network with watershed groups across New Mexico, and share successes, challenges and innovations. The forum was attended by 300 participants representing 130 different organizations. The audience included people from state, federal, and tribal agencies, non-profit organizations, watershed groups, professionals, educators, and interested citizens.

A plenary session opened the first day with the theme "Building Alliances Across Boundaries" which included as keynote speaker Brad Lancaster, an expert on water harvesting techniques. The second day consisted of workshops including sessions on "How to Form and Sustain a Watershed Group," "Funding Your Watershed Project," and "Resolving Environmental Conflict in Collaborative Forestry Projects." Information booths, poster presentations, and information discussions on many aspects of watershed restoration filled the rooms and hallways.

Pivotal discussions focused on creating a statewide alliance of watershed groups, new research and collaborative approaches in the face of climate change, shrinking funding sources, monitoring approaches for restoration project effectiveness, and service learning that engages youth with water quality concerns, wildlife and resource management objectives.

NPS Management Program Problems and Concerns

Changes necessary to adjust to the aforementioned reduction in staff and workload reallocations resulted in the failure to reach milestones for some of the program's ongoing deliverables. These include:

- ◊ Missed deadline for the FY08 319 Request for Proposals (RFP).
- ◊ Delayed delivery of the 2007 NPS Annual Report to EPA.
- ◊ Insufficient information in the 2007 NPS Annual Report.
- ◊ Quarterly publication of the WPS newsletter *Clearing the Waters*.

All of these problems were addressed by mid-year. The 2008 319 RFP was revised in March and issued on March 28. A thorough review of the comments received from EPA concerning the NPS Annual Reports from 2006 and 2007 was conducted. In addition, the 2006 and 2007 NPS Annual Reports were reviewed, and the format for the 2008 NPS Annual Report has been revised and the content updated to address EPA comments. It is anticipated this report will be delivered as directed on or before January 31, 2009. Quarterly publication of *Clearing the Waters* resumed with the publication of the Fall/Winter issue.

NPS Management Program Objectives for 2009

Following a year in which a thorough review of integral EPA guidelines and documents was conducted, the WPS began integrating critical components into the state's NPS Management Plan. The WPS recognizes that the process of reviewing and updating the NPS Management Plan is crucial to continued success in the 319 program, and it will be at the center of our efforts for the coming year. As such, the WPS is in a transitional period, making progress towards following newer guidelines, but with a large investment and many relationships that should be utilized and maintained. The WPS will initiate new planning efforts to update existing watershed plans to meet present guidance, but will continue to support on-the-ground projects with sound approaches to reducing NPS pollution in New Mexico. The WPS has identified the following NPS Management Program objectives for 2009.

- ◊ Complete a revision of the NPS Management Program Plan.

- ◊ Continue working with cooperators within each of four watersheds: the Rio de Los Pinos, San Antonio Creek, Bluewater Creek, and Ponil Creek to initiate four new on-the-ground projects to address the nonpoint source components of temperature TMDLs.

- ◊ Establish a WPS Effectiveness Monitoring Program for new 319(h) funded projects, starting with the 4 projects listed above, and provide progress reports annually.

- ◊ Continue quarterly publication of *Clearing the Waters*.

- ◊ Issue a RFP in the spring of 2009 to select projects that will update existing watershed plans relative to EPA's *Nonpoint Source Program and Grants Guidelines for States and Territories* (Fed Reg. Vol

68, No. 205, October 23, 2003).

◊ Issue a second RFP in spring 2009 to select on-the-ground projects with the greatest potential of success under the *National Water Program Guidance Fiscal Year 2008* (PAMs) WQ-10 and SP-12.

◊ Continue to develop and support other programs that address NPS pollution, including the Wetlands Program and the River Ecosystem Restoration Initiative.

Effectiveness Monitoring Program to Evaluate 319 Success

The WPS Effectiveness Monitoring Program was initiated in 2008 with the goal of documenting water quality effects resulting from section 319 funded projects (319 Projects). A strategic plan was developed to set and prioritize goals and objectives. An initial strategy was to inventory past and present 319 Projects to assess the potential to detect significant improvements to water quality based on the availability of pre-project baseline data. The inventory revealed that a majority of projects did not have adequate baseline data for a quantitative analysis of project efficacy. This was expected given that prior emphasis was on implementation monitoring and photographic monitoring to document improvements in riparian condition, but not necessarily on detecting improvements to water quality. A second strategy was to review data collected by the SWQB's Monitoring and Assessment Section (MAS), and agency cooperators such as the U. S. Forest Service to look for water quality improvements over time in impaired waters where 319 Projects have been implemented. Several projects showed measurable improvements and have been nominated as 319 Success Stories under the PAM's WQ-10 and SP-12.

Another goal of the Effectiveness Monitoring Program is to coordinate with MAS to include effectiveness monitoring objectives in their water quality monitoring and assessment activities in compliance with the Quality Management Plan. To that end, several WPS staff members have been involved in the planning of the upcoming 2009 Upper Rio Grande Survey which will include several sites selected to evaluate the efficacy of the NPS program. It is anticipated that this coordinated effort, coupled with the effectiveness monitoring incorporated into new 319 Projects, will document improvements in water quality and fulfill the requirements for the PAM's WQ-10 and SP-12 and confirm the success of New Mexico's NPS Management Program.

Load Reductions for 2008 319(h) Projects

Load reductions were calculated for all of the 319(h) projects administered by the WPS that concluded in 2008 where BMPs were implemented. The reductions were determineded by utilizing specific models that are designed to calculate reductions based on the BMPs implemented. In some instances, several models were utilized when a specific model could not provide reductions for each of the different BMP's implemented on a given project. All models were developed, approved and utilized by various agencies with expertise on the BMPs addressed by the model. They are as follows:

WEPP FuME and WEPP: Road- The Water Erosion Prediction Project (WEPP) models were developed by the United States Department of Agriculture/Agricultural Research Service at the National Soil Erosion Research Laboratory. They are applicable for examining hillslope erosion processes and producing a simulation of hydrologic and erosion process in small watersheds. WEPP FuME (Fuel Management) provides information on estimated sediment loads resulting from forest thinning, prescribed fire, and wildfire processes. The model distinguishes between low, moderate, and high intensity wildfire. As recommended by the model output, thinning project load reductions were estimated with the assumption that the project would reduce the probability of wildfire. A conservative estimate was calculated by subtracting the load resulting from thinning from the predicted load from a moderate wildfire. A similar approach can be used to estimate the potential benefits of prescribed fire which has been shown to improve watershed health including lowering the risk of high intensity wildfire and subsequent erosion. WEPP Road provides information on the estimated sediment loads resulting from unpaved roads. Load reductions were calculated for projects where a component of treatment involved removing, or relocating, highly erosive roads away from the receiving water.

SSTEMP- The Stream Segment Temperature Model (SSTEMP) was developed by the United States Geological Survey and is used to analyze the effects of changes in riparian canopy (shade), as well as the effects of withdrawals and returns on in-stream temperature. It is designed to analyze single stream segments for a specific time period. It is also used by the SWQB in the development of temperature TMDLs.

STEPL- The Spreadsheet Tool for Estimating Pollutant Load (STEPL) was developed by Tetra Tech for the EPA Office of Water. It is designed to estimate nutrient and sediment loads from a variety of land practices and the estimated load reductions from the implementation of a variety of BMPs.

Region 5 Load Reduction Model- The Region 5 Load Reduction Model is useful in examining the load reductions associated with gully stabilization, bank stabilization, filter strips (buffers), improved drainage from feedlots and agricultural fields, and urban runoff.

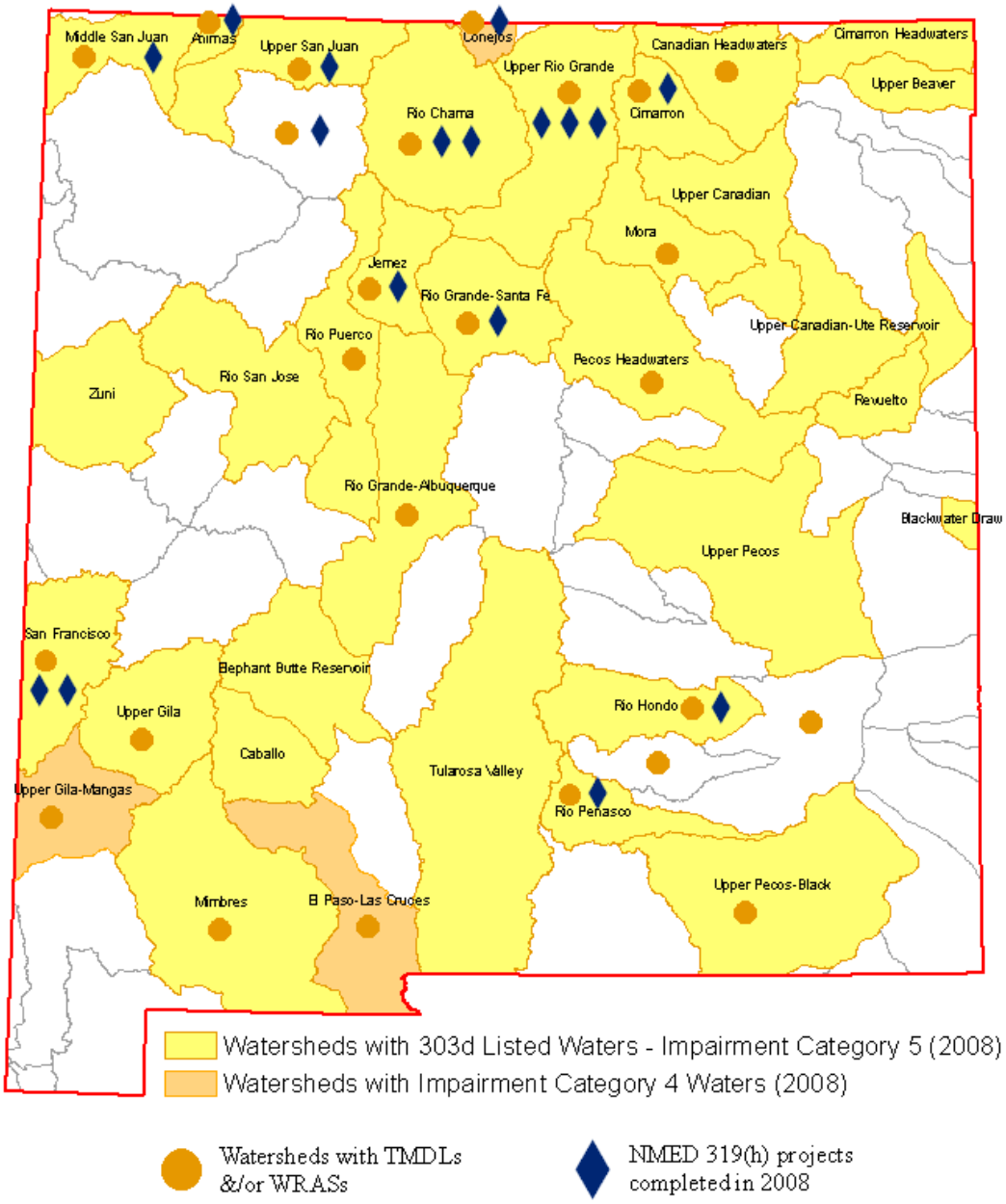
EPA's Onsite Wastewater Treatment Systems Manual- data summarized in the manual were used to estimate loading reductions for *E. coli* and nutrients.

The summary table on the following page provides an abbreviated project name, project number, BMPs implemented, load reduction model used, and an estimate of the load reduction for the receiving water. See the summary reports for individual projects beginning on page 14 for further information on watershed name and 8 digit HUC unit, waterbodies, impairments, and a narrative summary of results.

Load Reduction Estimates for 2008 319(h) Projects

Project Name	Project Number	BMPs Implemented	Load Reduction Model	Estimated Load Reduction
Ruidoso River Restoration Phase II	FY03-D	Road removal In stream structures Seeding	WEPP-ROAD	119 lbs sediment/day
Pilot Project in the Cimarron with the Nature Conservancy	FY03-K	Road closure Thinning Riparian Exclosures Bank Stabilization	WEPP-ROAD WEPP-FuME Region 5 Model	983 lbs sediment/day 0.06 lbs phosphorous/day 0.12 lbs nitrogen/day
Stormwater Management Plan-Los Alamos County	FY04-A	Wastewater and stormwater management	STEPL	3.8 lbs sediment/day
Comanche Creek Watershed Restoration	FY04-D	Bank Stabilization Riparian exclosures	SSTEMP	6.2 joules/m^2/s
Rio Puerco de Chama Watershed Project	FY04-E	Fencing Upland water tanks	STEPL	294 lbs sediment/day 0.18 lbs phosphorous/day 0.47 lbs nitrogen/day
Collaborative Red River Restoration	FY04-H	Road closure	Region 5 Model	13 lbs sediment/day
Collaborative Watershed Project - San Juan Basin	FY05-C	Enforcement action: Two septic tanks were removed	EPA Wastewater Treatment Systems Manual	0.02 lbs phosphorous/day 0 .1 lbs nitrogen/day $2x10^{11}$ CFU/day *E. coli*
Respect the Rio Phase II	FY05-D	See Project Spotlight Page 12	STEPL WEPP-FuME	416 lbs sediment/day
La Cieneguilla/Santa Fe River Restoration	FY05-E	Riparian Fencing Floodplain restoration Seeding	STEPL	89.3 lbs sediment/day 0.12 lbs phosphorous/day 0.6 lbs nitrogen/day
Upper Rio Vallecitos Watershed Project	FY05-I	None	None	None
Penasco River Improvement Project	FY06-D	Thinning Seeding	WEPP-FuME	34.2 lbs sediment/day
Rio Grande-ABQ Watershed Group	FY06-G	None	None	Watershed Group Formation
Rio de Los Pinos Restoration	FY06-H	Riparian exclosures In-stream structures	SSTEMP	56 joules/m^2/s
Centerfire/Black Bob Phase I	FY06-K	Bank stabilization Sediment retention structures in gullys	STEPL	6.6 lbs sediment/day
Los Vaqueros de Canjilon Restoration	FY07-C	None	None	None
Tularosa River Improvement Project	FY07-H	Thinning	WEPP-FuME	26.0 lbs sediment/day

New Mexico Watersheds with Impaired Waters



319(h) Project Spotlight - Respect the Rio

Respect the Rio Phase II (FY05-D)

Project Budget: Federal 319(h): $469,352 Match: $356,473 Project Total: $825,825
Watershed: Jemez Watershed (HUC 13020202)

The Jemez watershed is located in north-central New Mexico and encompasses approximately 1,043 square miles extending from its highest peak in the Jemez Mountains (Chicoma Mountain at 11,561 ft) to the Rio Grande valley at an altitude of 5,084 ft. There is a network of small perennial streams draining to the Jemez River which flows approximately 65 miles before draining into the Rio Grande. The watershed is primarily forest and rangeland on mostly U.S. Forest Service (including the Valle Caldera Trust), Tribal (the Pueblos of Jemez, Zia and Santa Ana), and some state and private land. It also includes the villages of San Ysidro and Jemez Springs.

The Jemez watershed has long been a principal recreation area for hunting, fishing, camping and hiking, especially for the citizens of Albuquerque, Rio Rancho and Santa Fe. Impacts as a result of the high visitation rate include unauthorized roads, parking areas, trails and campgrounds. Other uses include mining, logging, and livestock grazing. Historic and some present grazing management practices have placed an additional impact on the watershed. One of the primary issues facing the watershed is loss of vegetation in both the uplands and riparian corridor. This has led to increased erosion, and the resultant sediment transport into the system has led to poor water quality that threatens many of the fisheries in the watershed.

Of the 24 assessment units sampled in the Jemez watershed by the Surface Water Quality Bureau, 17 river segments were found to be impaired. Many streams are impaired with water quality problems directly related to loss of riparian vegetation and erosion from both the upland and riparian areas. Eight streams are impaired for sedimentation/siltation, seven for turdidity, and seven for temperature. Additional impairments include aluminum, pH, nutrients, specific conductance, and wide diurnal fluctuations in dissolved oxygen.

Respect the Rio combined watershed restoration projects and environmental education through public involvement to reduce NPS pollution in the Jemez River and its tributaries. Many of the Respect the Rio projects were implemented by volunteers. This empowered the local community and visitors alike to become stakeholders in promoting a healthy watershed. Numerous on-the-ground projects were implemented on the main stem of the Jemez River and eight of it's tributaries including the East Fork of the Jemez, the Rito Penas Negras, the Rio San Antonio, the Rio Guadalupe, the Rio de Las Vacas, Trail Creek, and the Upper and Lower Rio Cebolla. Some of the BMPs employed include: removal of almost six miles of highly erosive

trail, removal of one mile of road, culvert replacement, installation of 11 miles of fence to protect the riparian corridor, repair of 14 miles of buck and pole fence, thinning of 210 acres of timber, removal of unauthorized campsites, and re-seeding of sensitive areas to facilitate recovery.

These BMPs were accompanied by an extensive outreach effort. Outreach efforts included developing and maintaining the Respect the Rio website (www.fs.fed.us/rtr), and maintaining the Jemez Watershed Group website (www. jemezwatershedgroup.org). Numerous educational programs were an integral part of the project including hosting Children's Water Festivals that reached 1,241 4th grade students, adult community education programs, and multi media advertising in English and Spanish. In addition, Respect the Rio developed new school and community curricula including the Cutthroat Trout Life Cycle Game. The outreach materials and programs that were developed for Respect the Rio were also shared with other U. S. Forest Service staff in the region. Another major aspect of the Respect the Rio program are the U.S. Forest Service Contact Rangers and the Forest Protection Officer. The Contact Rangers conduct interviews with the public collecting visitor use information, and informing forest visitors on proper stewardship and methods to reduce riparian impacts. The information collected during these interactions is used to develop specific interpretive programs that include fireside talks on such diverse topics as local geology, the role of beavers in the watershed, and the life cycle of the cutthroat trout. The Forest Protection Officer focuses on educating visitors about river friendly camping and off road vehicle use. These efforts encourage appropriate recreational land use activities that have minimal or no contribution to water quality impacts.

The combined approaches of on-the-ground implementation and outreach activities have produced noticeable results in the watershed. Riparian vegetation has increased improving the systems buffering capacity of stormwater flows. Repair of old fencing and installation of new fence, installing cattle guards, and installing upland stock tanks has facilitated better livestock management and reduced impacts to the riparian areas. The new culverts and improved road drainage systems have reduced stormflow into the streams. Closure of sensitive areas and enforcing off-road-vehicle use regulations has decreased disturbance of topsoils and decreased erosion. Finally, the extensive outreach efforts and increased interaction between Forest Service staff has heightened user awareness and led to better stewardship and reduced impacts from recreational users.

Following an intensive water quality survey conducted by the SWQB in 2005, the Rio Cebolla was removed from the 303(d) list of impaired waters (2006-2008) for sedimentation/siltation as a cause of non-support for designated uses. As a result of these improvements, the SWQB has submitted a nomination to the EPA for the Rio Cebolla (12 digit HUC 130202020104) as a 319 Success Story under PAMs WQ-10 and SP-12. It is anticipated further success in the watershed will occur as both upland and riparian conditions in the watershed continue to improve.

Project Summaries for WPS 2008 319(h) Projects

Rio Ruidoso Watershed Restoration Project-Phase II (FY03-D)

Project Budget: Federal 319(h): $249,964 Match: $715,182 Project Total: $965,146
Watershed: Rio Hondo (HUC 13060008)
Sub-Watershed: Rio Ruidoso
Impairments: TMDLs for nutrients, temperature, and turbidity

Project Summary:

The project consisted of two separate components. The first component involved the removal of 4,500 ft. of road at the Ski Apache Ski Area followed by a reconstruction and stabilization of the channel adjacent to the road. After the road was removed, the channel was reshaped and 146 rock structures were installed utilizing 3,027 cubic yards of material. The second component involved the installation of 16 structures including: four crossvanes, five J-Hooks, two baffles, and five rock walls along a 1,300 ft reach of the Rio Ruidoso at Two Rivers Park in Ruidoso. These structures created the lost riffle-glide-pool morphology common to mountain steams. It further provided fish habitat and much needed bank stabilization which will reduce erosion along the reach. In addition, the Village of Ruidoso, one of the project cooperators, plans to add an interpretive trail with signs conveying the importance of stream function and watershed health.

Project Outcome:

Despite an extreme flood event July 26-27, 2008 that deposited 9 inches of rain at Ski Apache, both projects held together fairly well. A post-flood survey determined that approximately 50% of the structures at Ski Apache remained. Major repair was conducted on the damaged sections and the site was stabilized by season's end. Ski Apache has committed to continue stabilizing the site in the spring and summer of 2009 by seeding the banks along the reconstructed channel. The project at Two Rivers Park performed even better as an estimated 60-70% of the structures and stabilization work survived the flood intact. This area is scheduled to be resurveyed in the spring of 2009, and the Village of Ruidoso has committed to maintaining the existing structures and restabilizing the site.

Pilot Project in the Cimarron Watershed with the Nature Conservancy (FY03-K)

Project Budget: Federal 319(h): $648,843 Match: $462,202 Project Total: $1,111,045
Watershed: Cimarron (HUC 11040002)
Sub-Watershed: Cimarron River, Ute Creek, Cieneguilla Creek, La Jara Creek
Impairments: TMDLs for Al, fecal coliform, turbidity, sedimentation/siltation, temperature

Project Summary:

A microbial source tracking (MST) study was conducted on Cieneguilla Creek to provide finer resolution of bacteria data necessary for targeted BMP implementation. Thinning projects were designed and implemented to reduce the risk of catastrophic wildfire by reducing fuel loads and creating fire breaks. Exclosures were designed to lower channel width to depth ratio, increase canopy cover, increase effective ground cover and improve the overall filtering ability of the riparian area. Corral and road relocations were designed to increase the buffer width to streams, reduce erosion, and improve road drainage networks. Roads and corrals were relocated to minimize landscape disturbance.

Project Outcome:

The success of this project is due to the diversity and diligence of Cimarron Watershed Alliance stakeholders. Their knowledge and collective experience working in the private sector led them to form a 501 (c) (3) organization and adopt a formal corporate organizational structure. This solid foundation and consistent stakeholder participation and commitment are the main ingredients of this group's success. Another is capacity building. The watershed group model is based on the premise that long-term restoration is dependent on sustained local effort and support. Watershed groups who invest in themselves are more likely to develop into sustainable organizations. The MST study provided the information necessary to prioritize BMPs. Wildlife was the biggest contributor to total bacteria loads. However, domestic livestock (cattle, horses) were also represented. In addition to reducing the threat of wildfire, thinning activities successfully leveraged matching funds and led to the establishment of several "Firewise" communities in Colfax County. Enclosed areas provided the riparian area with rest needed for recovery of functions and values. Two corrals-stables were relocated. One facility was previously located adjacent to a listed stream (Cieneguilla Creek). An existing access road and low-water crossing were relocated in order to mitigate impacts to riparian areas and wet meadows.

Development of a Stormwater management Plan for Los Alamos County and Implementation Measures in the Pueblo Canyon Watershed (FY04-A)

Project Budget: Federal 319(h): $56,758 Match: $126,409 Project Total: $183,167
Watershed: Upper Rio Grande (HUC 13020101)
Sub-Watershed: Pueblo Canyon
Impairments: Al, gross alpha, Hg, PCBs, radium 226 and 228, and selenium

Project Summary:

The Pajarito Plateau Watershed Partnership (PPWP) is a regionally-based group of citizens and professionals concerned with issues affecting watersheds on the eastern flank of the Jemez Mountains in northern New Mexico. This area includes Los Alamos, San Ildefonso Pueblo, Española and the surrounding areas. The group studies issues of water quality, erosion, and water quantity. The primary goal of the PPWP during this project was education and changes in stormwater policy.

The following is a list of project strategies:

- Create a Geographic Information System (GIS) database of current stormwater drainage structures, flow patterns and potential impacts on natural drainages, and prioritize efforts based on analysis of the data.
- Propose changes to the Los Alamos County Development Code that would manage stormwater on development site plans and construction sites.
- Produce handbook of BMPs for homeowners, contractors, and developers.
- Provide public information through erosion control volunteer work parties, public information forums, and school group community service projects.
- Implement two rainwater harvesting projects within the Pueblo Canyon Watershed and two in-stream control projects in Pueblo Canyon.

Project Outcome:

The effort produced the GIS datase. The data are currently used by Los Alamos County, Los Alamos National Laboratory, and the New Mexico Environment Department. The PPWP helped draft changes to the Los Alamos County Development Code for stormwater control regulations for construction projects and assisted in writing revisions to the Los Alamos County engineering standards that relate to stormwater management. These were incorporated into official county documents for construction projects for activities during and post-construction on these projects. The project also assisted with the development and management of the first Los Alamos County Stormwater Pollution Prevention Plan (SWPPP) and institutionalized SWPPP planning for all subsequent County projects. In addition, the project coordinated the relocation of the Pueblo Wastewater Treatment Plant upstream of its prior location and planted over 4000 willow and cottonwood poles to restore a section of the riparian corridor in Pueblo Canyon.

Comanche Creek Watershed Restoration - Restoring Habitat for Rio Grande Cutthroat (FY04-D)

Project Budget: Federal 319(h): $143,510 Match: $138,357 Project Total: $281,867
Watershed: Upper Rio Grande (HUC 13010101)
Sub-Watershed: Comanche Creek
Impairments: TMDL for temperature

Project Summary:

The project was directed by several organizations working together as the Comanche Creek Working Group, with coordination provided by the Quivira Coalition and fiscal services provided by the Taos Soil and Water Conservation District. With significant labor provided by volunteers, these partners addressed the problems of excessive temperature and sediment loading in Comanche Creek with construction of strategically placed mini-exclosures to permit colonization of willows and cottonwoods, construction of post vanes and baffles to encourage colonization of vegetation on eroding banks, drainage improvements on the main

road through the area, and construction of a low-tech rock structure to halt progression of a headcut.

Project Outcome:

176 bank stabilization structures (post vanes and baffles) were constructed to protect eroding banks. 82 cross drains (mostly rolling dips) were constructed on Forest Road 1905 along the upper reaches of Comanche Creek. Two culverts were removed to allow trout to move into the Comanche Creek headwaters. One headcut treatment (a Zuni rock bowl) was built to arrest headcut advancement into a wet meadow above another culvert. Three new mini-exclosures were built. Maintenance of structures built during earlier work was also undertaken. Most significantly, 41 mini-exclosures built during an earlier project that were destroyed during the high spring runoff of 2005 were rebuilt during this project using different specifications that allow for floods to flow under the fences. The total number of mini-exclosures is now 46.

Rio Puerco de Chama Watershed Project (FY04-E)

Project Budget: Federal 319(h): $202,820 Match: $181,251 Project Total: $384,071
Watershed: Rio Chama (HUC 13020102)
Sub-Watershed: Rio Puerco de Chama
Impairments: Sedimentation/siltation. TMDL for turbidity.

Project Summary:

The primary focus of the Rio Puerco de Chama Watershed Project was to address the impacts of rangeland grazing on water resources. Grazing management was a priority to address problems with erosion that transport sediment and increase stream turbidity. This was accomplished through a series of range improvements and implementation of a new allotment management plan or Range Management Plan (RMP).

Project Outcome

Numerous BMPs were installed to facilitate implementation of the RMP. The BMPs include fencing and cattle guards for seperating pastures to allow for better rotation, corral construction, and trick tank installation to provide upland water sources. A gradual improvement in range conditions occured while the project was being implemented, and this trend is expected to continue now that the management plan has been adopted.

Collaborative Red River Restoration - ORV Reduction (FY04-H)

Project Budget: Federal 319(h): $75,000 Match: $50,796 Project Total: $125,796
Watershed: Upper Rio Grande (HUC 13020101)
Sub-Watershed: Red River, Cabresto Creek, Bitter Creek, Mallette Creek
Impairments: TMDLs for Al, and sedimentation/siltation

Project Summary:

A collaborative effort between Amigos Bravos and the U.S. Forest Service, the project was primarily an outreach and enforcement project designed to address various water quality impacts from unimproved (dirt) roads and the resultant erosion and sediment/metal transport. The goal of the project was to restrict vehicle use and access in sensitive areas and to increase the effective buffer width between roads and water resources. Gates and exclosures were installed to restrict road use and restrict access to riparian habitats. Eliminating roads from sensitive areas greatly enhances filtration of surface flows. Lower vehicle use will equate to a decrease in road prism erosion rates and the increase in buffer width will reduce the amount of pollutant load leaving the buffer. An enforcement officer was also hired by the U.S. Forest Service to deter off-road vehicle use.

Project Outcome:

Vehicle access was eliminated in some riparian areas and wet meadows, and several roads that were not part of the official Forest Service roads network were closed and rehabilitated. Replacing open access with seasonal road access significantly reduced annual use. An enforcement officer was also hired by the U.S. Forest Service to deter off-road vehicle use, and enforce road closure and season-of-use rules.

Collaborative Watershed Project for Supporting TMDL Implementation in the San Juan Basin (FY05-C)

Project Budget: Federal 319(h): $215,969 Match: $146,321 Project Total: $362,290

Watersheds: Upper San Juan (HUC 14080101), Blanco Canyon (HUC 14080103), Animas (HUC 14080104), and Middle San Juan (14080105)
Sub-Watershed: San Juan River and Animas River
Impairments: TMDLs for fecal coliform, nutrients, and sedimentation/siltation

Project Summary:

This project was composed of four subprojects.

Subproject A: Identification of Bacteria and Nutrient Sources and BMP Recommendations
A GIS database was developed that contains layers of existing water quality information and land-use data. A series of small studies was conducted to supplement this database and associate pollutant loading with specific sub-watershed areas and activities. The main products were the database and a final report which will be available early 2009.

Subproject B: Correction of Septic System Problems at Flora Vista – Phase 1
This subproject included investigative work needed to support the selection and construction of improvements to replace the malfunctioning septic systems in the Flora Vista area, an unincorporated community of several hundred dwellings located along the Animas River between Farmington and Aztec.

Subproject C: Improved Operation of Septic Systems in Farmington and Bloomfield
The Cities of Farmington and Bloomfield combined efforts to locate, identify, and inspect existing septic systems within their respective water utility service areas. The cities recruited septic system owners to participate anonymously in a septic system inspection program. At the conclusion of each inspection, the system owner was given recommendations for upgrades or repairs when warranted. A follow-up survey estimated the rate at which participants followed up on this advice.

Subproject D: Project Coordination, Collaboration, and Continuation
A project coordinator facilitated the ongoing collaborative process of the San Juan Watershed Group, involving approximately 25 participating entities and interests who served in an oversight role for this project. The coordinator provided overall coordination and administrative support, and pursued follow-up activities. The main products were a final report for the overall project and the initiation of a Phase II project which includes on-the-ground work to address pollutant loading, made possible by the information developed during this project.

Project Outcome:
Subproject A: The main products were the database and a final report which will be available on the internet in early 2009.

Subproject B: The main product was a Preliminary Engineering Report (a prerequisite for infrastructure funding) available from the NMED Construction Programs Bureau. San Juan County and the City of Farmington have committed funding for a sewer line that will transport waste from Flora Vista to Farmington for treatment, and thus divert some of the nutrient load from the Animas River.

Subproject C: The results were provided in a final report specific to this subproject which will be available on the internet in early 2009. One conclusion is that the investigators felt that the failed systems in general did not pose direct threats to surface water quality compared to properly functioning systems. The subproject produced a positive outcome in that the San Juan Watershed Group now has a basis for focusing its resources on other sources or other aspects of wastewater treatment.

Subproject D: The project coordinator successfully applied for Section 319 funds for a Phase II project that is bringing agricultural BMPs to the Stevens and Shumway Arroyo watersheds and other areas.

La Cieneguilla Open Spaces / Santa Fe River Restoration (FY05-E)

Project Budget: Federal 319(h): $114,275 Match: $124,231 Project Total: $238,506
Watershed: Rio Grande-Santa Fe (HUC 13020201)
Sub-Watershed: Santa Fe River
Impairments: TMDLs for sedimentation/siltation, DO, and pH.

Project Summary:

The primary objective of the project was to improve the ecological condition of the riparian system, with the intention that these ecological improvements would provide the catalyst to enhanced water quality in the Santa Fe River. Tasks included fencing the project area to inhibit unauthorized motorized vehicle use within the riparian zone as well as to prevent illegal dumping along this portion of the river. Mechanical removal of all non-native plants, especially invasive trees, and the removal of earthen berms was conducted to promote improved floodplain conditions which should provide a filter mechanism to reduce sediment in the river. Native riparian vegetation (trees, shrubs, grasses and forbes) was planted to strengthen the stream-banks, reducing sediment loading, and increase canopy cover along the river to reduce temperature.

Project Outcome:

The colloborative partnership between the WildEarth Guardians, Santa Fe County, and the Bureau of Land Management, facilitated the overall success of the La Cieneguilla Open Spaces / Santa Fe River Restoration project. Native vegetation was restored to a 1.5 mile reach of the river, and is flourishing after only two growing seasons. The new growth is providing shade for the stream, stability to the stream banks, and preventing trash and sediment from entering the river. The new vegetation is also expected to increase the areas capacity to act as a nutrient sink. The combined results of this effort are anticipated to stabilize pH and DO levels as the surface temperatures cool down and less sunlight minimizes algal growth.

Upper Rio Vallecitios Watershed Project (FY05-I)

Project Budget: Federal 319(h): $1,678 Match: $0.00 Project Total: $1,678
Watershed: Rio Chama (HUC 13020102)
Sub-Watershed: Rio Tusas, Rio Vallecitos
Impairments: Sedimentation/siltation. TMDLs for Al, temperature and turbidity.

Project Summary:

The Rio Vallecitos Watershed Project proposed to improve water quality by implementing a range management plan with an emphasis on rotational grazing to help enable the growth of both upland and riparian areas. The project applicant, the El Rito Ranger District of the Carson National Forest, will work closely with stakeholders, who are primarily grazing permitees on the National Forest, to develop the new strategies. Additional project objectives were to implement upland improvements including spring rehabilitation, installing trick tanks and troughs, earthen tanks, fencing, seeding, and solid waste cleanup.

Project Outcome:

The project was terminated prior to implementation of on-the-ground portions of the project.

Peñasco River Improvement Project (FY06-D)

Project Budget: Federal 319(h): $278,133 Match: $259,345 Project Total: $537,478

Watershed: Rio Peñasco (HUC 13060010)
Sub-Watershed: Rio Peñasco
Impairments: Sedimentation/siltation

Project Summary:

This project involved the thinning of approximately 300 acres of densely wooded juniper-ponderosa pine forest. The primary goal was to reduce the potential of wildfire which was indentified by SWQB in 2003 as a source of impairment in this watershed from the release of fine soils resulting from severe erosion following the loss of vegetation. A secondary goal was to reduce erosion by opening the forest canopy and to increase light infiltration in an effort to improve understory growth, especially grasses and forbes.

Project Outcome:

A total of 268 acres of the juniper-ponderosa were thinned. The downed trees were masticated with the resultant material broadcast across the project area. This was followed by seeding with smooth brome and orchard grass.

Rio Grande - ABQ Watershed Group Formation - Phase II (FY06-G)

Project Budget: Federal 319(h): $110,600 Match: $78,250 Project Total: $188,850
Watershed: Rio Grande-Albuquerque (HUC 13020203)
Sub-Watershed: The Rio Grande between the northern border of Isleta Pueblo and the southern border of Santa Ana Pueblo including adjacent ephemeral tributaries.
Impairments: TMDL for fecal coliform.

Project Summary:

The WPS believed that this watershed would benefit from a collaborative approach to identifying sources and reducing discharges of fecal coliform bacteria by building local interest and increasing local involvement in defining the problems and implementing solutions. According to the Middle Rio Grande Microbial Source Tracking Assessment Report migratory avian waterfowl (33.5%), canines (21.9%) and human sewage (15.9%) are the leading causes of fecal coliform pollution on this stretch of the river. Since there is little that can be done about the avian contribution, this phase of the project focused on the human and canine component in education and outreach efforts and completing The Middle Rio Grande, Albuquerque Reach Watershed Restoration Action Strategy Phase II.

Project Outcome:

The Middle Rio Grande, Albuquerque Reach Watershed Restoration Action Strategy Phase II has been completed. The Ciudad Soil and Water Conservation District's website was updated to include links to a mini-database called a "blog" for the Watershed Group which will include the Watershed Restoration Action Strategy, calendar of meetings, maps of the watershed, links to involved agency websites and postings from all the agencies involved.

Conejos Watershed Rio de Los Pinos River Restoration Demonstration Project (FY06-H)

Project Budget: Federal 319(h): $56,100 Match: $42,644 Project Total: $98,744
Watershed: Conejos (HUC 13010005)
Sub-Watershed: Rio de Los Pinos
Impairments: TMDL for temperature

Project Summary:

The Conejos Watershed Group, which includes the general public, representatives of ditch associations, grazing associations, water users, private property owners, local government officials, and state and federal agencies addressed the temperature TMDL with BMPs developed and presented in the Conejos Watershed Restoration Strategy. BMPs included riparian restoration, fencing, stream barbs, and other rock structures.

Project Outcome:

Increased canopy cover approximately 35% along the treated stream reach.

Centerfire/Black Bob Phase I (FY06-K)

Project Budget: Federal 319(h): $14,291 Match: $19,154 Project Total: $33,445
Watershed: San Francisco (HUC 15040004)
Sub-Watershed: Centerfire Creek
Impairments: TMDL for plant nutrients and conductivity

Project Summary:

The project applicant was the Gila National Forest (GNF). To address the complex issue of excessive plant nutrients in Centerfire Creek, the GNF chose to implement bank stabilization by vegetative armoring of approximately 500 linear feet of bank along Centerfire Creek. As part of the project, the GNF also constructed 33 sediment retention structures in ephemeral gullys and implemented an additional 300 feet of vegetative armoring along Cienega Creek, a tributary to the San Francisco River.

Project Outcome:

All 33 sediment retention structures were completed and approximately 500 linear feet of Centerfire Creek and 300 linear feet of Cienega Creek were planted with riparian poles to increase vegetative armoring and decrease bank erosion.

Canjilon Allotment (Sociedad De Los Vaqueros De Canjilon) (FY07-C)

Project Budget: Federal 319(h): $12,793 Match: $22,810 Project Total: $35,603

Watershed: Rio Chama (HUC 13020102)
Sub-Watershed: Canjilon Creek
Impairments: Listed for specific conductance, temperature and turbidity

Project Summary:

The project was intended to reduce NPS pollution into Canjilon Creek, by reducing soil erosion in the uplands and improving livestock grazing management by reducing grazing along the riparian corridor of the creek

Project Outcome:

The project was terminated prior to implementation of on-the0ground portions of the project.

Tularosa River Watershed Improvement Project (FY07-H)

Project Budget: Federal 319(h): $0.00 Match: $0.00 Project Total: $0.00
Watershed: San Francisco (HUC 15040004)
Sub-Watershed: Tularosa River
Impairments: TMDL for conductivity

Project Summary:

The project applicant was the Gila National Forest (GNF). To address the conductivity TMDL in the Tularosa River, the GNF chose to implement upland mechanical thinning of pinyon and juniper trees on 640 acres in the Squirrel Springs area.

Project Outcome:

The GNF completed thinning operations on 320 acres in the project area. No 319(h) funds and no non-federal match was expended on this project. The 320 acres thinned utililized federal non-matching funds.

Wetlands Program

Four new federal grants totaling $1,036,113 in federal assistance have been awarded through the FY08 EPA Wetlands Protection Development Grant Program authorized by CWA Section 104(b)(3). The project funds are for the "La Cienega de San Vicente Wetland Project," "Restoring and Protecting Wetlands in Cebolla Canyon Closed Basin," "Curry County Playas Restoration and Protection," and "Rapid Assessment for New Mexico Wetlands - Upper Rio Grande Phase 2" projects. All of these projects will be conducted with multiple community and agency partnerships.

The Wetlands Program is partnering with the Town of Silver City, the Gila Conservation Education Center and other partners to conduct the La Cienega de San Vicente Wetland Project. This project will demonstrate new wetlands restoration techniques for restoring riverine habitat in the Silver City watershed. Each of these projects includes the development of a Wetlands Action Plan as an addendum to the WRAS that is current for the area.

The Restoring and Protecting Wetlands in Cebolla Canyon Closed Basin Project will restore natural wetlands degraded by former agricultural practices primarily within the Cebolla Wilderness near Grants, New Mexico.

The Curry County Playas Restoration and Protection Project will demonstrate playa restoration techniques, create partnerships with ranchers and the town of Clovis, and complete a Wetlands Action Plan for Curry County.

The SWQB Wetlands Program is currently developing and implementing methods for a rapid assessment of New Mexico wetlands with a focus on the Upper Rio Grande watershed as the project area. The Rapid Assessment for New Mexico Wetlands - Upper Rio Grande Phase 2 project includes refinement of the process and analyses of the data. In addition, validation of the rapid assessment will occur in year two of the project.

For more information visit the New Mexico Wetlands Program on the SWQB website:
www.state.nm.us/SWQB/wetlands

NM Water Quality Standards Program

Triennial Review

The NMED initiated the Triennial Review of the state's surface water quality standards in August 2008 with the publication of a discussion draft of proposed amendments followed by public meetings and a public comment period. The Triennial Review petition was presented to the New Mexico Water Quality Control Commission (WQCC) in December 2008. Among the proposed revisions are a refinement of the definitions of ephemeral and perennial waters, addition of narrative biological criteria, revisions to the protections for unclassified waters, clarification of designated contact (recreation) uses, and updates to the human health criteria. The Triennial Review hearing is anticipated to take place in the fall of 2009.

Outstanding National Resource Waters

Outstanding National Resource Waters (ONRWs) are waters that receive special protection against degradation under New Mexico's water quality standards and the federal Clean Water Act. They are designated by the WQCC. Waters eligible for ONRW designation include waters that are part of a national or state park, wildlife refuge or wilderness areas, special trout waters, waters with exceptional recreational or ecological significance, and high quality waters that have not been significantly modified by human activities.

In 2005 and 2006, the WQCC designated New Mexico's first ONRWs. The designated waters are:

- The Rio Santa Barbara (west, middle and east forks) within the Pecos Wilderness; and
- The surface waters within the U.S. Forest Service Valle Vidal Special Management Unit.

On Earth Day 2008, Governor Bill Richardson announced the state's intention to seek ONRW designation for surface waters within national forest wilderness and inventoried roadless areas in New Mexico. If successful, this will be the third ONRW designation for New Mexico. National forest wilderness and inventoried roadless areas include approximately 5,340 miles of the state's surface waters. Approximately 1,000 miles of these waters are perennial. The rest are ephemeral and intermittent streams where the primary concern is nonpoint source pollution.

CWA §303(d)/§305(b) Integrated Report and TMDLs

The public was invited to comment from June 9, 2008 to July 9, 2008 on the draft 2008-2010 State of New Mexico Clean Water Act (CWA) §303(d)/§305(b) Integrated List of Assessed Surface Waters. Responses to comments were prepared and provided to the WQCC and EPA Region 6. The SWQB did not complete any TMDLs in 2008. However, TMDLs are in development and SWQB plans to meet it's commitment to EPA for TMDL development in 2009.

Updates on the Triennial Review process can be viewed at www.nmenv.state.nm.us/swqb/Standards/

Updates on the ONRW initiative can be viewed at www.nmenv.state.nm.us/swqb/ONRW/

Monitoring and Assessment Program

The Monitoring and Assessment Section (MAS) did not conduct a traditional water quality survey in 2008. Instead, staff focused on stream and river activities targeted at data acquisition for TMDL development, continued water quality efforts for a federally funded study in the Middle Rio Grande, collection of chemical, biological, and habitat data from reference and long term monitoring sites to aid in biological criteria development, field testing a draft hydrologic assessment, and data collection efforts to support Use Attainability Analysis needed for the Triennial Review of New Mexico's Water Quality Standards. In addition, water quality studies were conducted on Lake Holloman and Burn Lake to determine use applicability and overall conditions.

Hydrology Determination Protocol

A hydrology workgroup was established in February 2008 to develop a hydrology protocol to distinguish ephemeral streams from intermittent streams, and intermittent streams from perennial streams using a combination of hydrological, biological, and physical characteristics of the stream or river. Field indicators of these characteristics are ranked using a weighted, four-tiered scoring system similar to the current system developed by the North Carolina Division of Water Quality. Additional supporting information such as long term flow data, the presence of certain aquatic organisms, historic information, or information from stakeholders and professionals may be used with the total score to make a final determination.

During the 2008 field season the SWQB collected data that will be used to develop a preliminary draft protocol. Data was collected from 30 stream reaches throughout the state, and along with atmospheric data will be used to fine tune the preliminary draft protocol. The SWQB will field test this protocol in the summer of 2009 and refine it as needed based on the 2009 observations. The *Final Hydrology Protocol for the Determination of Perennial, Intermittent, and Ephemeral Waters* is scheduled for completion in December 2009.

Sedimentation/Siltation Protocol

The SWQB current sedimentation/siltation protocol was originally developed in the late 1990s in order to determine sedimentation (i.e. "stream bottom deposit") impairment. Prior to the development of this protocol, this listing determination was generally qualitative. The original protocol was developed to determine whether or not impairment was due to excess sedimentation, and provide enough information to develop subsequent TMDLs in response to the Consent Decree.

Some issues with the current protocol have surfaced in recent years. In response to these concerns, the SWQB formed a sediment workgroup in February 2008 to review and revise the current sedimentation/siltation assessment protocol for wadeable, perennial streams. The SWQB will provide EPA Region 6 with a final draft version of the protocol for their pre-public comment period review. The SWQB will then open the protocol for public comment in preparation of development of the next Integrated Clean Water Act §303(d) / §305(b) Report.

River Ecosystem Restoration Initiative

The River Ecosystem Restoration Initiative (RERI) is an opportunity to protect and restore river systems across the state. This initiative is part of Governor Richardson's "Year of Water" legislative agenda, and is designed to sustain, re-establish and rehabilitate the integrity and understanding of New Mexico's river ecosystems through the enhancement of physical, chemical and biological characteristics. To date, the State of New Mexico has committed $5.3 million to 27 river ecosystem restoration projects through this initiative.

The RERI complements NMED's CWA 319(h) and Wetlands Program which have the goals of improving water quality and restoring wetlands. RERI aligns directly with NMED's performance goal of addressing impaired stream miles through watershed restoration projects to improve surface water quality. Many of the contractors are local watershed groups that were previously or currently funded by CWA 319(h) funds. These groups are motivated to improve water quality but often lack the necessary funds to accomplish all the projects in their plans. RERI engages a broad and diverse set of stakeholders, including many conservation organizations, watershed groups, and multiple agency partners (NM Energy, Minerals and Natural Resources Department, NM Interstate Stream Commission, NM Department of Agriculture, NM Department of Finance and Administration, NM Department of Game and Fish, New Mexico State University, US Army Corps of Engineers).

The initiative was funded in the amount of $2.5 million through a capital outlay bill during the FY2007 state legislative session and $2.8 million through a severance tax bond bill during the FY2008 state legislative session. In order to award the funds, NMED issued a RFP in May of 2007 and 2008. The RFPs requested proposals for projects that restore instream ecosystem function and watershed health to major river basins. Major criteria for project selection included: a clear objective and measurable outcomes, is sustainable, is supported by scientific studies, is collaborative, maximizes the conservation of biological diversity, is supported by stakeholders, and includes monitoring and long-term maintenance plans. In 2008, 15 projects received funding with an emphasis given on funding physical projects with the ability to show tangible results and water quality improvements. The projects occur on federal, state, tribal, and private land.

For more information on the River Ecosystem Restoration Initiative, visit www.nmenv.state.nm.us/swqb/reri

CWA Section 401 Certification Activities

Staff continue to process water quality certifications under section 401 of the federal CWA. The purpose of the section 401 Water Quality Certification is to ensure that section 404 Discharge of Dredge or Fill permits issued or authorized by the U.S. Army Corps of Engineers (Corps) comply with state water quality standards.

In response to the Corps section 404 reissue of nationwide permits on March 19, 2007, a Conditional section 401 Water Quality Certification for discharges to ephemeral surface water was issued by NMED on March 29, 2007 which is available from NMED SWQB WPS's web site. A project-specific section 401 Water Quality Certification must be obtained for permitted discharges to any intermittent surface water, perennial surface water or wetlands defined in 20.6.4.7 NMAC, and to any ONRW designated in 20.6.4.9 NMAC that are authorized by nationwide permits. Projects authorized by individual section 404 permits also require a project-specific section 401 Water Quality Certification. The certifications include a list of conditions to be met by the applicant to ensure that the project is: consistent with state law, complies with the state water quality standards, implements the Water Quality Management Plan (including TMDLs, the Continuing Planning Process, and Antidegradation Policy Implementation Plan).

CWA Section 404/401 Water Quality Certifications and Actions:	
Certifications	
Nationwide Permits Certified	70
(those in ephemerals)	31
Individual Permits Certified	3
Certifications in Progress	23
Total	96
Other Actions	
No Permit Necessary	17
Withdrawn	1
Enforcement Action	9
Consultation	4
Total	31

The state has been divided into five geographic areas (Northwest, Northeast, Albuquerque, Southwest and Southeast). Certification duties are now assigned to six staff in the Santa Fe, Silver City, Las Cruces, and Las Vegas Offices. Of the six staff, one position continues to be jointly funded between the NMED and the New Mexico Department of Transportation (NMDOT) and acts as a main point of contact for section 401 Water Quality Certification relating to NMDOT transportation projects. Staff duties related to the section 401 Water Quality Certifications include, but are not limited to, coordination, consultation, inspection, and outreach.

New Mexico Mining Act Activities

The New Mexico Mining Act (19 NMAC 10) obligates the 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 exploration applications or modification of existing exploration permits, the NMED is provided an opportunity for formal comment. For new mining operations, the NMED is responsible to "certify that water quality standards are expected to be met" and to determine that the proposed 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, the NMED has an opportunity to concur with proposed permit changes. In general, the NMED has 20 days from receipt of an application to respond.

The NMED has an informal team that includes representatives from the SWQB, GWQB, and the Air Quality Bureau to review mining applications and otherwise support the work of the New Mexico Mining and Minerals Division. This work involves review of applications, local site conditions (generally including site visits), and applicable water quality standards. The SWQB discusses BMPs and other activities with the applicant in an effort to negotiate mining plans that prevent or minimize environmental risks. The NMED's written responses often include conditions necessary to ensure compliance with environmental standards.

Beyond permitting actions, this NMED team also participates in meetings and reviews documents in support of the work of the New Mexico Mining and Minerals Division, the US Army Corps of Engineers, the Nuclear Regulatory Commission, and others. In 2008 SWQB reviewed and commented on over 40 mining notices, applications, restoration plans, hydrologic reports, monitoring plans, and activity reports.

NMDOT/NMED Activities

The NMDOT/NMED Task Force was created to provide improved communications between both departments regarding environmental concerns related to the NMDOT construction and maintenance activities. A meeting of the Task Force was held on January 16, 2008 in Santa Fe. The meeting was attended by multiple agencies including the NMDOT, the U.S. Army Corps of Engineers Regulatory Division, and NMED staff from the SWQB, GWQB, Solid Waste Bureau, Hazardous Waste Bureau, Construction Programs Bureau, Petroleum Storage Tank Bureau, and the Air Quality Bureau. Topics included problems associated with tire bales used for bank stabilization and erosion control, CWA section 404 permit requirements, CWA section 401 state water quality certification requirements, the NMDOT composting program and salt remediation oversight issues.

NMDOT Task Force

"On The Road" Task Force meetings were held in Districts 1 and 2, and included discussion topics such as CWA section 404/401, and composting techniques for compliance with NPDES stormwater regulations. The Task Force anticipates to continue the "On The Road" meetings in 2009 with meetings scheduled in March and June. Wetland conservation and BMPs associated with work in and around wetlands will be added to the agenda.

NMDOT Recycling Program

The NMDOT continues to develop innovative uses for tire bales through the ongoing "Standards for Tire-Bale Erosion Control and Bank Stabilization of Existing Practice and Implementation" research project. Another recycling effort is the use of composted mulch for slope stabilization and erosion control.

NMDOT Training

NMDOT is offering a class on wetland delineation with an emphasis on utilizing the new regional supplements. The class will be conducted by the Wetlands Training Institute June 15-19, 2009.

Coordination with Watershed Groups

Initial discussions were held with the Cimarron Watershed Alliance to discuss possible wetland mitigation projects. NMDOT has conferred with the Galisteo Watershed Partnership regarding bridge replacement over Galisteo Creek.

Special Project

The NMDOT is partnering with the SWQB and the New Mexico Department of Game and Fish on a wetlands project located in the Gila Watershed. The project, which is currently in the design phase, involves working on the West Fork of the Gila River utilizing stream restoration techniques to prevent erosion.

Projects Completed by Non-NMED Agencies

The following land management agencies completed various projects in New Mexico (see tables on pages 29-41) that ultimately contribute to the reduction of nonpoint source pollutants in surface waters. The most common NPS issues being addressed are excessive erosion, sedimentation, encroachment of exotic vegetation, streambank stability, excessive nutrients, and excessive water temperature.

Watersheds containing non-NMED project work affecting water quality

Watershed Name	8-digit HUC
Animas	14080104
Animas Valley	15040003
Arroyo Chico	13020205
Arroyo del Macho	13060005
Blanco Canyon	14080103
Caballo	13030101
Canadian Headwaters	11080001
Carrizo Wash	15020003
Chaco	14080106
Cimarron	11080002
Cloverdale	15080303
Conejos	13010005
Delaware	13070002
El Paso-Las Cruces	13030102
Elephant Butte Reservoir	13020211
Jemez	13020202
Jornada del Muerto	13020210
Jornada Draw	13030103
Landreth/Monument Draw	13070007
Mimbres	13030202
Mora	11080004
Pecos Headwaters	13060001

Watershed Name	8-digit HUC
Plains of San Agustin	13020208
Rio Chama	13020102
Rio Felix	13060009
Rio Grande-Santa Fe	13020201
Rio Hondo	13060008
Rio Penasco	13060010
Rio Puerco	13020204
Rio Saldo	13020209
Rio San Jose	13020207
Salt Basin	13050004
San Bernadino Valley	15080302
San Francisco	15040004
San Simon	15040006
Upper Gila	15040001
Tularosa Valley	13050003
Upper Gila-Mangas	15040002
Upper Pecos	13060003
Upper Pecos-Black	13060011
Upper Pecos-Long Arroyo	13060007
Upper San Juan	14080101
Upper Rio Grande	13020101
Western Estancia	13050001

Bureau of Land Management Projects:

Carlsbad Field Office

Watershed Name	Project Description	Water Quality Impact Addressed
Delaware	Maintenance salt cedar removal on 8.3 miles, treated re-sprouts	Increase herbaceous ground cover to reduce sediment yield. Monitoring indicates slight increase in stream flow, dissolved oxygen; slight decrease in temperature and TDS
Upper Pecos-Black	Burn salt cedar piles along 18 miles of river bank along Pecos River. Site preparation for revegetation.	Decrease runoff, erosion, and sedimentation. Increase herbaceous ground cover. Improve infiltration and water holding capacity.
Rio Penasco	Juniper reduction on 2 sites (5 acres and 10 acres).	Decrease runoff, erosion, and sedimentation. Increase herbaceous ground cover. Improve infiltration and water holding capacity.
Delaware Landreth/Monument Draw Upper Pecos-Black	182,680 acres of brush control.	Decrease runoff, erosion, and sedimentation. Increase herbaceous ground cover. Improve infiltration and water holding capacity.
Upper Pecos-Black	Reclaim 9 drilling pads (33 acres), 9 caliche pits (62 acres), 3 road segments (1.4 acres); Remove caliche, re-contour, re-seed 190 ac.	Reduce soil erosion and sedimentation. Improve infiltration and water holding capacity. Increase herbaceous cover.

Farmington Field Office

Watershed Name	Project Description	Water Quality Impact Addressed
Animas Blanco Canyon	Reclaim ¾ mile of road. Maintain ~ 725 miles of road, and reconstructed ~30 miles of roads.	Reduce erosion and sedimentation.
Blanco Canyon Chaco	Thin sagebrush and young pinon/juniper trees and seed 329 acres	Reduce runoff, soil erosion, and sedimentation. Increase in herbaceous vegetation growth and water infiltration.
Animas Blanco Canyon Upper San Juan	Approved ~ 520 Applications of Permit to Drill with BMPs resulting in ~780 new silt traps.	Reduce runoff, soil erosion, sedimentation, and increase water infiltration.
Upper San Juan	Construct silt fences in Jaquez and Pump Canyon	Protection of riparian vegetation, and reduction in sediment transport.
Upper San Juan	Mow and seed 100 acres within La Manga Watershed	Reduced runoff, erosion, and sedimentation. Increase in herbaceous vegetation and water infiltration.
Chaco Upper San Juan	Thin sagebrush on ~31,606 acres of sagebrush/grassland	Reduce runoff, soil erosion, and sedimentation. Increase water infiltration and herbaceous vegetation.

Las Cruces Field Office

Watershed Name	Project Description	Water Quality Impact Addressed
El Paso-Las Cruces Jemez	Maintenance of Dams (3)	Reduce flooding, erosion, sedimentation.
Salt Basin Upper Gila-Mangas Animas Valley	Thinning of 330 acres and Rx burn of 527 acres. Thinning and Rx burn of 387 acres Thinning of 130 acres. Prescribed burn (4000 acres)	Decrease runoff, erosion, and sedimentation. Increase herbaceous ground cover. Improve infiltration and water holding capacity.
Animas Valley Jornada Draw Mimbres Salt Basin Tularosa Valley Caballo El Paso-Las Cruces	107,051 acres of brush control to reduce/eliminate creosote/tarbush 85 acres of tamarisk control	Reduce invasive brush densities. Increase herbaceous ground cover, infiltration, water holding capacity. Decrease runoff, erosion, sedimentation. Improve Proper Functioning Condition (PFC). Decrease salinity.

Rio Puerco Field Office

Watershed Name	Project Description	Water Quality Impact Addressed
Arroyo Chico	Create rolling dips on roads.	Reduce runoff, erosion, and sedimentation. Improve drainage.
Arroyo Chico Rio Puerco	Tamarisk control on 18 earthen erosion control dams.	Protect integrity of earthen dams for continued reduction in peak flows and sediment transport.
Rio Puerco	Stabilize headcuts with rock structures.	Stop headcut erosion, slow runoff, reduce sedimentation.

Roswell Field Office

Watershed Name	Project Description	Water Quality Impact Addressed
Upper Pecos	Mesquite removal (5,434 acres)	Reduce runoff, erosion, sedimentation. Improve water infiltration and retention. Increase herbaceous vegetation.
Upper Pecos-Long Arroyo	Mesquite removal (18,924 acres)	Reduce runoff, erosion, sedimentation. Improve water infiltration and retention. Increase herbaceous vegetation.
Rio Hondo	Mesquite removal (149 acres) Exotic tree removal (8 acres) Erosion control structures installed. Stream stabilization structures installed	Reduce runoff, erosion, sedimentation. Improve water infiltration and retention. Increase water table level & flow. Increase herbaceous plant vegetation. Stream bank stabilization.

Socorro Field Office

Watershed Name	Project Description	Water Quality Impact Addressed
Rio Puerco	Juniper thinning and removal on 1300 acres	Reduce runoff, soil erosion, and sedimentation. Increase water infiltration. Increase herbaceous vegetation.
Rio Puerco	Construction of 50 earthen structures.	Reduce downstream sediment loads and erosion. Stabilize head cuts and channel incision.
Rio Puerco	Prescribed burn (8,000 acres)	Reduce runoff, soil erosion, and sedimentation. Increase water infiltration. Increase herbaceous vegetation.
Jornada del Muerto	Juniper removal (250 acres).	Reduce runoff, soil erosion, and sedimentation. Increase water infiltration. Increase herbaceous vegetation.
Jornada del Muerto	Juniper removal (100 acres)	Reduce runoff, soil erosion, and sedimentation. Increase water infiltration. Increase herbaceous vegetation
Jornada del Muerto	Sand sage control (11,000 acres)	Decrease erosion and sediment loads. Increase herbaceous vegetation. Increase water infiltration.
Rio Saldo	Tamarisk control (100 acres)	Increase water quality and quantity.

Taos Field Office

Watershed Name	Project Description	Water Quality Impact Addressed
Rio Chama	Sagebrush control (2430 acres)	Reduce sedimentation, turbidity and temperature impairments.
Rio Grande-Santa Fe	Non-native plant control (5 acres)	Reduce sedimentation and turbidity.
Upper Rio Grande	Woody species thinning (228 acres) Prescribed burn (321 acres) 200 acres removed for biomass	Reduce sedimentation, turbidity and temperature impairments.
Upper Rio Grande	Sagebrush removal and reseeding (1525 acres)	Reduce sedimentation, turbidity and temperature impairments.
Upper Rio Grande	2 facilities developed or maintained for livestock water sources	Reduce sedimentation, turbidity and temperature impairments.
Upper Rio Grande	Tamarisk control (1 acre)	Reduce sedimentation and turbidity.
Upper Rio Grande	6 sites monitored on Rio Grande, Rio Embudo and Agua Caliente	Assess impairments to temperature, pH, turbidity, conductivity, nitrate and P.
Western Estancia	Prescribed burn (20 acres)	Reduce sedimentation, turbidity and temperature impairments.

New Mexico State Forestry Division

Watershed Name	Project Description	Water Quality Impact Addressed
Canadian Headwaters	Timber Harvests (2,666 acres) in Mixed Conifer Forests	Reduce runoff, erosion, sedimentation. Increase herbaceous ground cover.
Cimarron	Timber Harvests (1,190 acres) in Ponderosa/Mixed Conifer Forests Thinned 13 acres in Ponderosa Pine/Mixed Conifer Forest	Reduce runoff, erosion, sedimentation. Increase herbaceous ground cover.
Mora	Timber Harvests (550 acres) in Mixed Conifer Forests	Reduce runoff, erosion, sedimentation. Increase herbaceous ground cover.
Pecos Headwaters	Timber Harvests(40 acres) in Ponderosa Pine Forest	Reduce runoff, erosion, sedimentation. Increase herbaceous ground cover.
Rio Chama	Timber Harvest (310 acres) in Mixed Conifer Forest	Reduce runoff, erosion, sedimentation. Increase herbaceous ground cover.
Rio San Jose	Timber Harvests (310 acres) in Ponderosa Pine Forest	Reduce runoff, erosion, sedimentation. Increase herbaceous ground cover.

Soil and Water Conservation District (SWCD) Projects:

Carlsbad SWCD

Watershed Name	Project Description	Water Quality Impact Addressed
Upper Pecos-Black	Tamarisk control (62 acres) Brush control Erosion control structures	Increase water table and streamflow. Decrease sediment and erosion. Increase herbaceous cover.
Upper Pecos-Black	Tamarisk control (721 acres).	Increase water table and streamflow. Decrease sediment and erosion.
Upper Pecos-Black	Brush control (98,000 acres)	Increase water infiltration. Increase herbaceous cover. Decrease sediment and erosion.

Sierra SWCD

Watershed Name	Project Description	Water Quality Impact Addressed
Caballo	Ponderosa/Pinon/Juniper thinning and removal (19 acres)	Increase water table level & flow. Reduce runoff, erosion, sedimentation.
Elephant Butte Reservoir	Land Leveling (21.91 acres)	Increased irrigation efficiency. Reduce runoff, erosion, sedimentation.

Grant SWCD

Watershed Name	Project Description	Water Quality Impact Addressed
Upper Gila-Mangas Upper Gila	Two watersheds studied for soil moisture and groundwater response to tree thinning treatments.	Decrease risk of catastrophic fire. Prevent erosion.
Upper Gila-Mangas	Maintenance on a sediment retention structure, blocked erosion gullies and created sediment traps.	Decrease erosion.
Upper Gila Mimbres	Clearing and/or thinning of select portions of NM Hwy 152, NM Hwy 15, and NM Hwy 90.	Decrease risk of catastrophic fire. Prevent erosion.
Upper Gila Mimbres	Wildland Urban Interface Thinning Projects (88 acres)	Decrease risk of catastrophic fire. Prevent erosion.

US Forest Service Projects:

Carson National Forest

Watershed Name	Project Description	Water Quality Impact Addressed
	Trail Maintenance	Harden trail crossing where natural spring/seep intersects. Allows water to cross the trail and protects small wetland area <0.1 ac.
Blanco Canyon	Sediment trap construction (6) Road maintenance (1 mile) Culvert installation (3) Old bridge removal	Reduce runoff, erosion, sedimentation. Improve drainage.
Cimarron	Road maintenance (48 miles)	Reduce runoff, erosion, sedimentation. Improve drainage.
Cimarron	Noxious weed removal	Increase herbaceous plant growth.
Conejos	Lagunitas prescribed burn (1200 acres)	Reduce runoff, soil erosion, and sedimentation. Increase water infiltration. Increase herbaceous vegetation.
Rio Chama	Fence Construction (2 miles) Stocktank Maintenance/Repair (6) Cattleguard Maintenance (6)	Improve animal distribution and forage use and reduce dependence of grazing animals on riparian areas.
Rio Chama	Woody species thinning (350 acres)	Improve herbaceous cover and water holding capacity.
Rio Chama	Burned Area Rehab (400 acres)	Reduce soil erosion and sedimentation.
Rio Chama	Sagebrush control (350 acres); Grass revegetation.	Decrease sediment and erosion. Increase water infiltration. Increase herbaceous cover.

Carson National Forest

Watershed Name	Project Description	Water Quality Impact Addressed
Rio Chama	Wild Horse removal (24)	Reduce grazing pressure.
Rio Chama	Noxious weed treatment (50 acres)	Improve herbaceous plant growth.
Rio Chama	Hazardous fuel reduction Prescribed burn (100 acres)	Decrease erosion Increase infiltration Reduce risk of catastrophic wildfire
Rio Chama	Tio Gordito pinyon pine/juniper thinning (80 acres)	Decrease erosion Increase infiltration
Upper Rio Grande	Headcut stabilization (4)	Reduce erosion, sedimentation, and specific conductance. Prevent further loss of wetland area and functions.
Upper Rio Grande	Reduction in permitted grazing #s Invasive species control (100 ac)	Reduce grazing impacts. Increase herbaceous vegetation. Reduce erosion and sedimentation.
Upper Rio Grande	Maintained 81 miles of roads. Installed culvert. Cleaned 5 culverts	Decrease erosion. Improve drainage.
Upper Rio Grande	Prescribed burn (880 ac) Thinning (631 ac)	Reduce hazardous fuels loading. Increase herbaceous vegetation. Reduce erosion and sedimentation. Improve livestock distribution
Upper Rio Grande	Trail Maintenance (20 miles)	Reduce runoff, erosion and sedimentation. Improve trail drainage.
Upper Rio Grande	Riparian Exclosure Construction (.25 mile long)	Protects stream channel integrity. Buffer strip to filter sediments.
Upper Rio Grande	Trail Maintenance	Improve drainage to reduce sediment transport. Restore stream bank integrity.
Upper Rio Grande	Grazing analysis (2 allotments)	Reduce grazing impacts.
Upper Rio Grande	Trail Maintenance (3 miles)	Decrease erosion. Improve drainage.
Upper Rio Grande	Taos Ski Valley North American Trail Analysis	Project implements BMP to protect riparian spring drainage and associated channel.
Upper Rio Grande	Inactive Mine Remediation (CERCLA) – Red River Mining District	Removal of mine waste (~ 10,200 CY). Reduction of sediment and metals input. Improvement of wetland function.
Upper San Juan	Sediment trap construction (12) Road maintenance (3.5 miles) Woody Species Thinning Culvert installation (9) Wild horse removal (8).	Reduce runoff, erosion, sedimentation. Improve drainage. Manage grazing use, improve vegetative groundcover conditions.

Coronado National Forest

Watershed Name	Project Description	Water Quality Impact Addressed
Animas Valley Cloverdale	Clanton/Cloverdale Allotment Environmental Analysis completed and decision made	Purpose and need for the analysis included erosion
Animas Valley San Simon San Bernadino Valley Cloverdale	Maverick, Guadalupe, Robertson, and Walnut Canyon Allotments Environmental Analysis completed and decision made	Reason for alternative selection includes "maintain and promote improvement in upland vegetation and soil condition."
Animas Valley San Simon	Juniper Basin, Deer Creek, and Skull Canyon Allotments Environmental Analysis completed	Effects of grazing on soil, watershed, and riparian condition are issues addressed with mitigation measures.

Gila National Forest

Watershed Name	Project Description	Water Quality Impact Addressed
Animas Valley	Coop Well (solar)	Improve livestock and wildlife distribution.
Animas Valley	Walking X Well (solar)	Improve livestock and wildlife distribution.
Caballo	Renovated Lookout and Robs Tank, earthen stock tank.	Reduce runoff of sediment. Improve water catchment capability.
Carrizo Wash	Agua Fria Pipeline (.75 miles)	
Carrizo Wash	Gap II Pinyon-Juniper thinning (153 acres)	Fuels reduction and prevention of sediment problems associated with wildfire. Increase herbaceous cover.
Carrizo Wash	Trail Maintenance (13 miles)	Reduce runoff, erosion, sedimentation. Reduce amount of sediment entering stream system. Improve bank stability.
Carrizo Wash	Agua Fria Pipeline (.75 miles)	Improve livestock and wildlife distribution.
Carrizo Wash	Forest Road 854 realignment (0.25 miles)	Remove road from drainage bottom and minimized crossings.
Carrizo Wash San Francisco	TEP Pile Chipping (337 acres)	Fuels reduction and prevention of sediment problems associated with wildfire. Increase herbaceous cover.
Mimbres	Little Walnut (158 Acres) ; YCC Trick Tank	Fuel reduction and an increase in ground cover/erosion control. Improve livestock and wildlife distribution.
Mimbres	State Road 35 thinning (169 Acres)	Reduce fuels and erosion. Increase herbaceous cover.

Gila National Forest

Watershed Name	Project Description	Water Quality Impact Addressed
Mimbres	Juniper pulling project on Juan Mesa (92 acres)	Improve herbaceous cover resulting in stabilized soils and reduced erosion.
Mimbres	Whitetop Well (solar)	Improve livestock and wildlife distribution.
Plains of San Agustin	Water distribution pipeline (2.2 mi) Water distribution troughs (3) Water distribution storage tank (2)	Improve livestock and wildlife distribution resulting in an increase of stabilized soils. Reduce runoff, erosion and sedimentation.
San Francisco	Exclosures – Nolan Spring 0.1 acre, Mud Spring (0.5 acre) Trail maintenance (14 miles)	Reduce runoff, erosion, sedimentation. Improve bank stability.
San Francisco	Trail maintenance (13.5 miles)	Reduce runoff, erosion, sedimentation. Improve bank stability.
San Francisco	Dirt stock tanks cleaned (2) Fence replacement/repair (2 miles) Noxious weed treatment(478 acres)	Improve livestock and wildlife distribution resulting in an increase of stabilized soils. Reduce runoff, erosion and sedimentation. Increase water table level & flow.
San Francisco	Road Maintenance (~8 miles)	Reduce runoff, erosion, sedimentation.
San Francisco	Noxious weed treatment (5 acres) Commercial thinning (536 acres) PJ removal (112 acres) Prescribed Burn (220 ac) Fence replacement/repair (6.5 mi)	Reduce hazardous fuels. Increase water table level & flow. Increase in herbaceous cover. Reduce runoff, erosion and sedimentation.
San Francisco	Willow Planting (5 acres)	Stream bank stabilization.
San Francisco	Freeman tank water lot (1 acre) Centerfire tank#1 water lot (1 acre) Centerfire tank #2 water lot (1 acre) Whiting tank water lot (1 acre)	Improve livestock and wildlife distribution resulting in an increase of stabilized soils.
San Francisco	Erosion control (20 structures built) Reserve WUI thinning (100 acres) Pre/Commercial thinning (98 acres) PJ removal (5 acres) Prescribed burning (111 acres) Wildland Fire Use (43 acres) Dirt stock tanks cleaned (3)	Reduce runoff, erosion, sedimentation. Improve bank stability. Reduce hazardous fuels Increase water table level & flow. Increase in herbaceous cover.
San Francisco	Trail maintenance (12 miles).	Reduce runoff, erosion, sedimentation. Improve bank stability.

Gila National Forest

Watershed Name	Project Description	Water Quality Impact Addressed
San Francisco	Trail maintenance (52.6 miles) Stock Tank Cleanout (1 dirt tank) Reseed and Fence (5 acres) Road Maintenance (5 miles) Catwalk (1 acre bank stabilization) Exclosure (0.5 acre) Harve Gulch Trick Tank (5 acres)	Reduce runoff, erosion, sedimentation. Improve bank stability. Improve herbaceous ground cover. Improve wildlife habitat. Reduce hazardous fuels.
Upper Gila	Prescribed Burn (7652 acres) Renovated earthen stock tanks (4); Rebuilt erosion control dams	Increase herbaceous cover. Reduce runoff of sediment while improving the water catchment capability of the tank. Reduce runoff, sediment and erosion with structures.
Upper Gila	Tamarisk removal on East Fork Gila River (1,870 acres)	Noxious plant removal from perennial river system and associated riparian area.
Upper Gila	Graves Wildland Fire Use (72 ac) Bailey Wildland Fire Use (401 ac) Brannon Wildland Fire Use (7 ac)	Improved herbaceous ground cover resulting in stabilized soils and reduced erosion.
Upper Gila	Indian Creek Trick Tank (5 acres) Trail maintenance (9.5 miles).	Reduce runoff, erosion, sedimentation. Improve bank stability.
Upper Gila	Fence replacement/repair (9 miles) Water distribution pipeline(7 miles) Water distribution troughs (9) Dirt stock tank cleaned (9)	Increase herbaceous cover. Improve animal distribution. Reduce runoff, erosion and sedimentation.
Upper Gila	Maintenance of Solar Bees at Lake Roberts (70 ac). Purple loosestrife removal at Lake Roberts (1 acre)	Increase dissolved oxygen and pH. Improve water temperatures. Reduce noxious weeds.
Upper Gila	Wildland Fire Use (982 acres)	Improved herbaceous cover resulting in stabilized soils and reduced erosion
Upper Gila	Tamarisk control along Gila R.	Reduction of nonnative invasive species.
Upper Gila	Tamarisk control on Middle Fork of Gila River (248 Acres)	Noxious plant removal from perennial river system and associated riparian area.
Upper Gila-Mangas	State Road 15 thinning (436 Acres) Pinos Altos thinning (248 Acres)	Fuel reduction and an increase in ground cover/erosion control.
Upper Gila-Mangas	Pipeline and Troughs with water lots (2 miles of pipeline, 3 troughs, and 3 water lots).	Improve livestock distribution.
Upper Gila-Mangas	Erosion control structures (5); Sawmill Well (solar); Burro Mountains thinning (400 ac) ;	Reduce runoff, erosion, sedimentation. Improve livestock and wildlife distribution. Increase herbaceous cover. Fuel reduction.

Santa Fe National Forest

Watershed Name	Project Description	Water Quality Impact Addressed
Mora	Forest thinning for fuel reduction (66 acres). Prescribed burn (200 acres)	Increase infiltration Decrease erosion Decrease risk of catastrophic fire
Pecos Headwaters	Gallinas WUI thinning for fuel reduction (1,000 acres)	Increase infiltration Decrease erosion Decrease risk of catastrophic fire
Pecos Headwaters	Invasive weed management (25 acres)	Provide additional groundcover in place of Musk thistle Decrease erosion, & sedimentation
Pecos Headwaters Mora	Active participant in Upper Pecos Watershed Group Active participant in Sapello Watershed Group	Contributed to development of WRAS Public outreach and involvement
Pecos Headwaters	Proper Functioning Condition (PFC) on approximately 4.5 mi within Pecos Headwaters	Determination of overall health of a riparian-wetland
Pecos Headwaters	La Cueva "Block B" WUI for fuel reduction (130 acres)	Increase infiltration Decrease erosion Decrease risk of catastrophic fire
Jemez Watershed	Meadow Restoration (6 acres - Hay Canyon) Thinning of encroaching conifer, 12" diameter.	Increase infiltration Decrease erosion Better distribution of wildlife and livestock grazing to reduce foraging in Rio Cebolla riparian area
Jemez Watershed	Willow enhancement - 1 mile upper Rio Cebolla Pruned dead and overgrown willows along the Rio Cebolla	Improve infiltration Decrease erosion Help to retain beaver in area by increasing food source
Jemez Watershed	Eroding bank stabilization, with LEB;s, mulch and fencing	Decrease sedimentation to Rio Cebolla
Jemez Watershed	Removed dispersed campsites away from Rio Cebolla stream bank.	Increase infiltration Decrease sedimentation to Rio Cebolla
Jemez Watershed	Maintenance of three water developments to restore holding capacity for wildlife and livestock	Better distribution of wildlife and livestock grazing to reduce foraging in riparian areas.

Santa Fe National Forest

Watershed Name	Project Description	Water Quality Impact Addressed
Jemez Watershed	East Fork Jemez bridges	Decrease erosion
Jemez Watershed	Rio Vacas allotment riparian fencing	Better distribution of wildlife and livestock grazing to reduce foraging in Rio Cebolla riparian area.
Rio Chama	Forest Service Road 422 barricade	Deter vehicular access along and through stream listed for temperature.
Rio Chama	CFRP-Road Closure and Decommissioning Decommissioned - 10 Miles Closed - 21 Miles Thinning – 200 acres Mesa Alta Wildland Fire Use – 860 acres Mesa Camino/Corral Prescribed Fire – 670 acres Mesa Camino/Corral Thinning – 330 acres	Decrease erosion Increase infiltration Decrease risk of catastrophic fire
Rio Chama	Bear Paw Fire Salvage – 216 acres Bear Paw Tree Planting – 500 acres Bear Paw Road Closures – 3.0 Miles Gallina WUI Mastication – 330 acres	Decrease erosion Increase infiltration Decrease risk of catastrophic fire
Rio Chama	Cordovas Riparian Thinning – 25 acres Mesa Poleo Slash Mastication – 300 acres	Decrease erosion Increase infiltration Decrease risk of catastrophic fire
Rio Chama	Coyote Allotment Pasture Fence – 4 miles Mesa Camino and Salitral Trick Tank water developments	Better distribution of wildlife and livestock grazing to reduce foraging in riparian areas.
Rio Grande-Santa Fe	7 acres willow planting	Decrease erosion Increase infiltration

Lincoln National Forest

Watershed Name	Project Description	Water Quality Impact Addressed
Tularosa Valley	High Rolls Mines waste rock removal containing toxic metals with high concentrations.	Reduce potential impact to surface water and groundwater pathways
Arroyo del Macho Rio Felix Rio Hondo Rio Penasco Tularosa Valley	Mechanized and prescribed burn treatment on fuels reduction in the Smokey Bear and Sacramento Districts (8504 acres).	Reduce risk of catastrophic wildfire. Reduce impact on water quality.
Upper Pecos-Black	Mechanized and prescribed burn treatment on fuels reduction in the Guadalupe District (4647 acres).	Reduce risk of catastrophic wildfire. Reduce impact on water quality.

State-wide Projects (not reported by watersheds)

Natural Resources Conservation Service:

Comprehensive Nutrient Management Plans

Comprehensive Nutrient Management Plans were developed by the NRCS field offices in Roswell (6), Portales (3), and Los Lunas (1). Funding is continuing to be available for manure management through the Farm Bill Environmental Quality Incentives Program for animal feeding operations. The Western Region SARE Air Quality Workshop and New Mexico CNMP Workshop were held for dairy producers, planners, and consultants.

Nutrient Management

The certification program and training course on Nutrient and Pest Management have been in effect since 2001 for NRCS and CES employees, other agencies, private consultants, and producers. Over 180 participants have been trained since 2001. Nutrient management practices (in acres) were applied to utilize resources efficiently and reduce nutrient runoff and leaching from cropland in Bernalillo (4), Chaves (26), Curry (141), De Baca (33), Dona Ana (40), Eddy (4), Hidalgo (8), Lea (27), Otero (8), Quay (32), Rio Arriba (8), Roosevelt (17), San Juan (94), Sandoval (40), Socorro (4), Torrance (8), Union (3), and Valencia (37) counties.

Conservation Buffers

Conservation buffers reduce sediment losses and runoff. Riparian forest buffers (35 ac), stream bank and shoreline protection (3761 ft), and windbreaks/shelterbelts (55869 ft) were applied in New Mexico, chiefly in Curry, Grant, Harding, Luna, Quay, Rio Arriba, Roosevelt, San Juan, Torrance, and Union counties. Riparian restoration training was provided for planners and partners across the state.

Irrigation Water Management

Irrigation water management practices applied, which reduce runoff and leaching, included acres applied in

the following counties: Chaves (1721), Colfax (58), Curry (8790), De Baca (312), Dona Ana (693), Eddy (1806), Hidalgo (327), Lea (6206), Luna (915), Otero (257), Quay (1608), Rio Arriba (159), Roosevelt (12483), San Juan (699), Sandoval (196), Santa Fe (1006), Sierra (33), Socorro (128), Taos (1741), Torrance (597), Union (366), and Valencia (497). Irrigation land leveling was applied on 852 acres. An integrated water management handbook, http://www.nm.nrcs.usda.gov/technical/handbooks/iwm/nmiwm.html, was developed and integrated cropland management training sessions were held for planners and partners across the state.

Pest Management

Pest management systems (in acres) were applied on cropland, pasture and rangeland to utilize resources efficiently and reduce pesticide runoff and leaching in the following counties: Chaves (1778), Colfax (58), Curry (14755), De Baca (374), Dona Ana (721), Eddy (1950), Guadalupe (397), Harding (35), Hidalgo (404), Lea (1797), Luna (203), Otero (257), Quay (5902), Rio Arriba (28), Roosevelt (4529), San Juan (2855), Sandoval (293), Santa Fe (270), Socorro (14612), Torrance (299), Union (3263), and Valencia (440). Brush management practices were applied on 177216 acres. Brush management training was provided for planners and partners across the state.

Watershed Plans

Watershed plans were developed in Cibola (1), Eddy (1), Harding (1), Lea (3), Otero (1), Rio Arriba (2), Roosevelt (1), San Miguel (1), and Santa Fe (1) counties.

Prescribed Grazing

Prescribed grazing practices (in acres) were applied on rangeland in the following counties: Bernalillo (5816), Catron (33580), Chaves (99916), Cibola (29980), Colfax (15071), Curry (7214), De Baca (209138), Dona Ana (330), Eddy (37395), Grant (42873), Guadalupe (859), Harding (1519), Hidalgo (120658), Lea (68961), Lincoln (92589), Luna (19445), McKinley (9511), Mora (682), Otero (1485), Quay (124331), Rio Arriba (15343), Roosevelt (77518), San Miguel (2040), Sandoval (966), Santa Fe (554), Socorro (3119), Taos (26881), Torrance (39307), Union (49225), and Valencia (7355). Fences were installed on 1,704,166 acres.

Waste Management

Waste storage facilities were installed in Chaves (1), Dona Ana (6), Lea (1), and Socorro (1) counties. Waste treatment lagoons were installed in Bernalillo (2) and Dona Ana (2) counties.

Residue Management

Conservation crop rotation (79589 acres), cover crop (1167 acres), mulch till (2188 acres), no till (5264 acres), seasonal residue management (62182 acres) were applied to cropland to reduce sediment losses and runoff and utilize resources efficiently, chiefly in Chaves, Curry, De Baca, Dona Ana, Eddy, Hidalgo, Lea, Luna, Otero, Quay, Roosevelt, San Juan, Sandoval, Santa Fe, Taos, Torrance, Union, and Valencia counties.

NOTES

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