2007

NEW MEXICO Nonpoint Source Management Program

Annual Report

New Mexico Environment Department

State of New Mexico
Nonpoint Source Management Program

2007 Annual Report

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New Mexico Environment Department
Surface Water Quality Bureau
Preserving, protecting, and improving New Mexico's surface water quality for present and future generations.

Table of Contents

NM NONPOINT SOURCE MANAGEMENT PROGRAM
2006 ANNUAL REPORT

Introduction ..... Page 1

Financial Summary ..... Page 4

SWQB Program Updates ..... Page 6
- Watershed Protection & NPS Management Program
- New Mexico Wetlands Program
- New Mexico Water Quality Standards
- Monitoring & Assessment Program
- TMDL Program
- CWA Section 401 - Discharge of Dredge or Fill Program

Nonpoint Source Project Summaries for 2007

SWQB NPS Management Program Projects ..... Page 12
- New Mexico Watersheds Map & Project Areas
- CWA Section 104(b)(3) Grant Projects
- CWA Section 319(h) Grant Projects
  - Northern New Mexico Watersheds
  - Southern New Mexico Watersheds

Other New Mexico NPS Management Programs ..... Page 25
- Northern New Mexico Watersheds
- Southern New Mexico Watersheds
- State-Wide Projects

List of Abbreviations ..... Page 38

Introduction

The purpose of this annual report is to provide an overview of nonpoint source management related activities conducted around New Mexico between January and December, 2007. The report identifies programs and actions which address specific nonpoint source pollution problems and help address the goals and objectives outlined in the NMED Surface Water Quality Bureau's (SWQB) Nonpoint Source Management Program Plan. The majority of funding for projects is provided by Clean Water Act section 319(h) grants awarded to New Mexico Environment Department (NMED) by the Environmental Protection Agency (EPA); non-319 funded activities are also included in this report. Projects include implementation of best management practices (BMPs) & 401/404 permits.

What is Nonpoint Source Pollution?

EPA defines nonpoint source pollution to be ... "caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made pollutants into lakes, rivers, streams, wetlands, estuaries, other costal waters, and groundwater. Atmospheric deposition and hydrologic modification are also sources of nonpoint pollution". Nonpoint source pollution (NPS) is also referred to as "polluted runoff"

Federal Clean Water Act's Framework to Manage 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 streams and rivers. When congress amended the Clean Water Act (CWA) in 1987, section 319 was added to establish a national program to control nonpoint sources of pollution. Under §319 (h) funds are made available to state and local agencies, non-profit organizations, and citizen watershed groups to address nonpoint source water pollution.

Section 319 contains three main strategies for addressing polluted runoff:

- Require states to prepare assessments of their NPS pollution problems
- Requires states to develop management programs to address NPS issues
- Create a grant program allowing EPA to fund state programs for NPS assessment and control.

Two prior sections of the CWA designed to manage both point sources and nonpoint source pollution are §303 and §305. Under section 303(d), states are required to list all polluted surface water bodies in their jurisdiction which do not meet state water quality standards (also known as the "impaired waters list"). Under section 305(b), states must publish a biennial report on the health of all surface waters. In New Mexico the 305(b) report includes the 303(d) list and is referred to as the Integrated Clean Water Act §303(d) / §305(b) Report.

Nonpoint Source Pollution in New Mexico

Nearly 95% of water quality impairment identified in New Mexico's streams & rivers is due to nonpoint sources (NPS) of water pollution. Nonpoint sources also account for widespread ground water contamination in New Mexico. Hydromodification can affect attainment of state water quality standards by diverting water out of stream channels, by impounding waters, and through channelizing and dredge-and-fill activities.

The current 2006-2008 State of New Mexico Integrated Clean Water Act §303(d) / §305(b) Report is available at the SWQB office or on our website at: www.nmenv.state.nm.us/swqb/303d-305b/2006-2008

NEW MEXICO'S NONPOINT SOURCE MANAGEMENT PROGRAM

As the designated lead agency for management of nonpoint source pollution, the New Mexico Environment Department (NMED) coordinates activities within the state through the Surface Water Quality Bureau (SWQB) and the Ground Water Quality Bureau (GWQB). In accordance with the federal Clean Water Act, the SWQB has developed a NPS Management Plan.

Our ultimate goal is to manage a balanced program that both addresses existing impairments [those listed under the 303(d) list] and prevents future impairments with WRAS implementation.

The NPS Management Program focuses on:

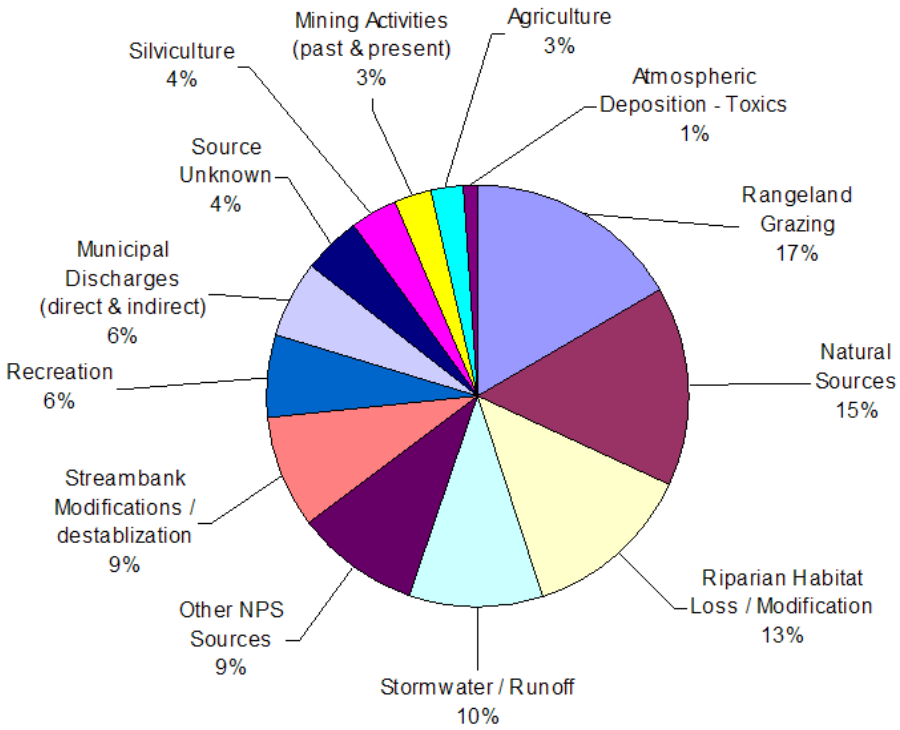
- The Watershed Restoration Action Strategy (WRAS) (also known as a watershed implementation / management plan) for coordinating watershed restoration efforts
- Fostering watershed associations
- Partnering with agencies, entities, & the public
- Implementing total maximum daily loads (TMDLs)

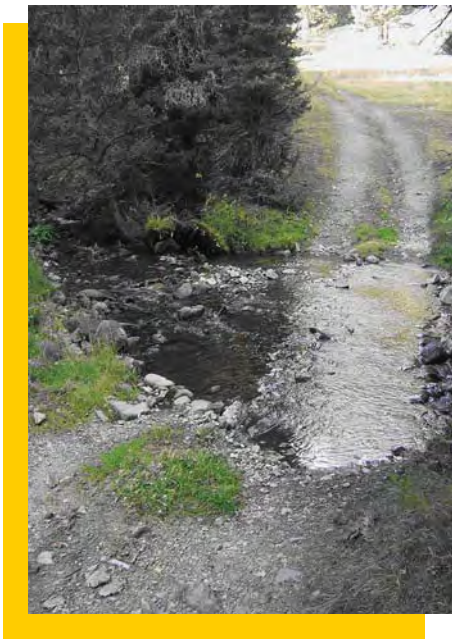
The program also relies on established resource protection, nonpoint source pollution prevention programs, and activities of other land management / resource protection agencies. SWQB identifies programs and activities that will facilitate the achievement of surface water quality criteria and uses a voluntary approach to achieve water quality improvements. Incentives to voluntarily implement projects and restoration efforts include competitive grant funding through §319(h) of the federal Clean Water Act and technical support and guidance through the SWQB.

NMED's *Nonpoint Source Management Plan* is available at the SWQB office or on our website: www.nmenv.state.nm.us/swqb/wps

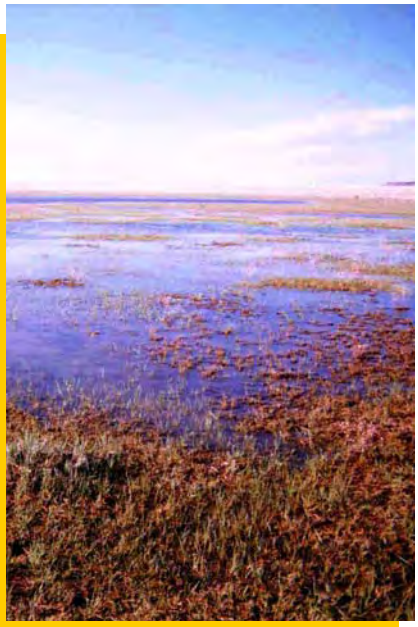
Principal sources of nonpoint source pollution in New Mexico

For Rivers & Streams

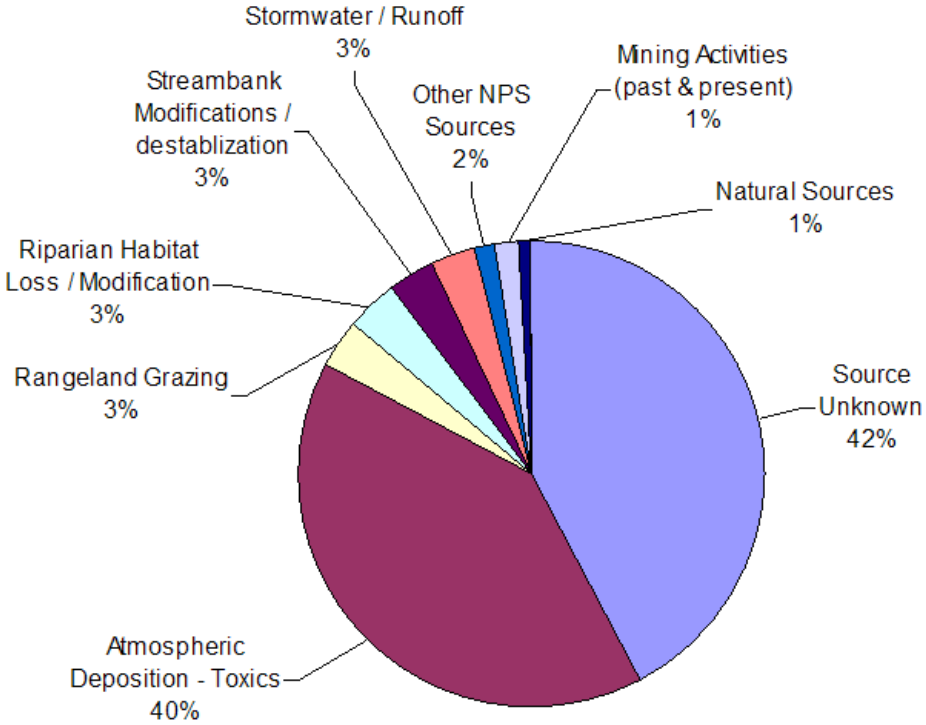




Data in charts derived from the SWQB Water Quality Database in January 2007

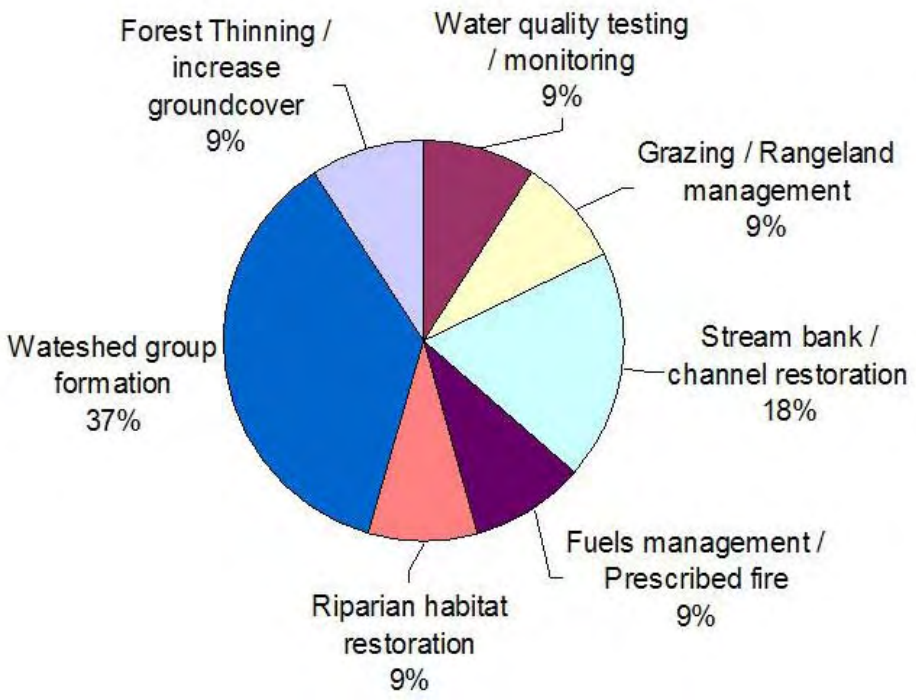


For Cirque Lakes, Reservoirs, & Playa Lakes

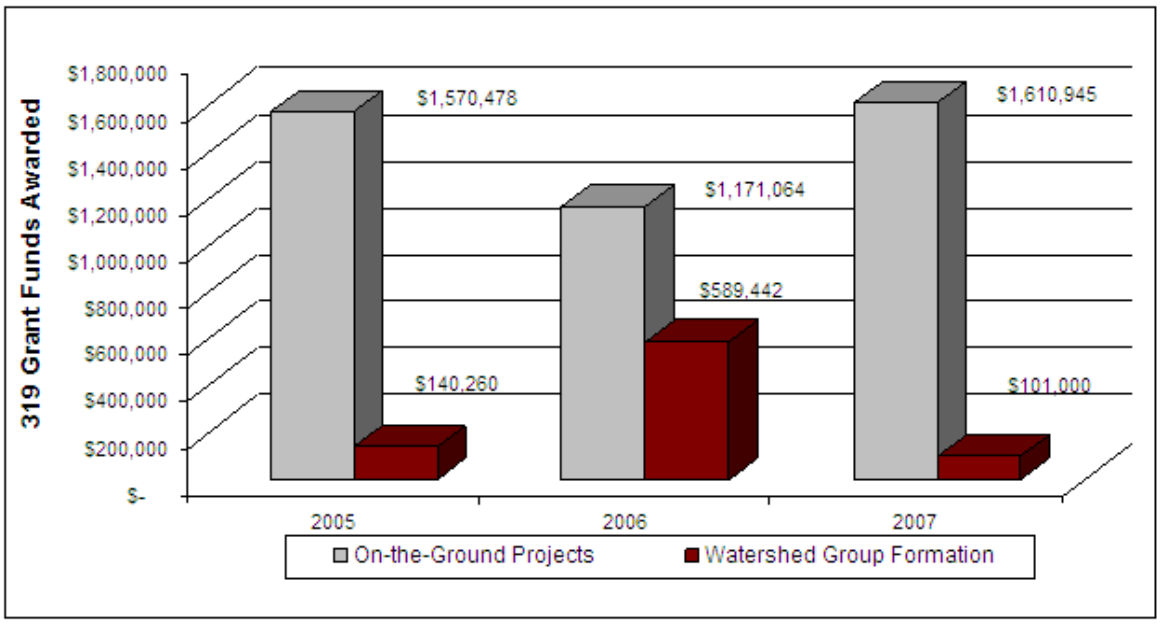


FINANCIAL SUMMARY FOR 2007

CWA Section 319(h) Funding Distribution for 2007



Nonpoint source issues and strategies addressed through 319(h) funded projects completed in 2007.



319(h) grant funds awarded to "On -the-Ground" (OTG) and "Watershed Group Formation" (WGF) projects in 2005, 2006, and 2007. Funds for 2008 not yet awarded.

Year	Project Type	Watershed (8-digit HUC)	319 Funds Awarded
2005	WGF	Pecos Headwaters	$ 27,700
2005	WGF	Upper Gila	$ 28,153
2005	WGF	Upper Rio Grande	$ 80,200
2005	OTG	Rio Grande-Santa Fe	$ 101,425
2005	OTG	Rio Chama	$ 125,280
2005	OTG	Pecos Headwaters	$ 200,000
2005	OTG	State-wide (initial focus in Jemez)	$ 240,534
2005	OTG	San Juan	$ 246,078
TOTAL FUNDS FOR 2005			**$1,049,370**
2006	WGF	Pecos Headwaters	$ 33,700
2006	OTG	San Francisco	$ 41,000
2006	WGF	Tularosa Valley	$ 42,900
2006	OTG	San Francisco	$ 43,200
2006	OTG	Conjeos	$ 56,100
2006	WGF	Animas	$ 90,912
2006	WGF	Rio Grande - Albuquerque	$ 110,600
2006	WGF	El Paso - Las Cruces	$ 145,130
2006	OTG	Rio Grande - Albuquerque	$ 254,034
2006	OTG	Rio Hondo	$ 368,480
2006	OTG	Rio Penasco	$ 406,250
TOTAL FUNDS FOR 2006			**$1,592,306**
2007	OTG	San Juan	$19,122
2007	OTG	Upper Gila	$19,191
2007	OTG	San Francisco	$36,700
2007	WGF	Upper Pecos	$101,000
2007	OTG	Upper Chama	$160,118
2007	OTG	Upper Pecos	$210,000
2007	OTG	Upper Rio Grande	$227,986
		PILOT PROJECTS WITH NRCS/EQIP	
2007	OTG	Mimbres	$65,000
2007	OTG	San Juan	$199,711
TOTAL FUNDS FOR 2007			**$1,038,828**

CWA 319(h) funds awarded to WGF and OTG projects in New Mexico watersheds. Total project budgets also include cash matches and in-kind matches (not included in this table). Funds have not yet been awarded for FY 2008.

Watershed Protection & Nonpoint Source Management Program

The SWQB Nonpoint Source Management Program goal is to implement progressive watershed-based restoration and protection programs with the active assistance of all stakeholders, for all watersheds within New Mexico in order to meet water quality criteria that will fully protect designated uses as described in the NM Water Quality Standards. As a result of implementing this program, New Mexico hopes to achieve measurable results such as: Reduced NPS pollutant loadings; Successfully implemented TMDLs/WRASs; reducing number of impaired water bodies throughout NM; and Ensure ground water quality for municipal, domestic, and agricultural uses.

To accomplish this specific goal, the Management Program has identified key objectives. Over the next five years we will: target all watersheds with completed TMDLs for watershed restoration and watershed group formation projects; develop WRASs in watersheds with impaired water bodies and restoration projects; integrate Wetland Action Plans into WRASs where applicable. A New Mexico Watershed Forum is planned for September 2008. Additionally we will impliment WPA Performance Measures for the 319 program in accorddance withe EPA's strategic plan. SWQB has hired a new staff person to monitor pre and post BMP implementation in order to show trend and effectiveness data. New Mexico fully intends to remove waterbodies from the 303(d) list by 2011. Improvements will be tracked in GRTS as required by EPA as well as having face-to-face meetings with the EPA on a semi-annual basis.

"Measure W" of EPA Strategic Plan (2006-2011); New Mexico Priority Watersheds:

In 2006, NMED and EPA identified the 8-digit scale hydrologic units (HUCs) associated with §319(h) projects as representing priority areas for waterbody restoration within the State. During 2007, NMED refined the information to target certain waters based on the 12-digit scale HUCs and track improvements in water quality as potential successes under EPA's Measure W (watersheds restored).

NONPOINT SOURCE PROGRAM ACTIVITIES, 2007	
Implement NPS restoration & protection programs	
319(h) projects completed in 2007	9
319(h) projects in progress	27
319(h) projects awarded for 2008 (RFP for FY 08-09 not yet issued)	N/A
Develop WRASs for all watersheds with impaired surface waters by 2015	
# of 8 & 11- digit HUC watersheds that have or contribute to impaired waters (out of 662)	41 & 252
Number of above watersheds represented in a WRAS document	142
WRAS documents developed to date	31
Form watershed groups in watersheds with TMDLs each year with 319(h) funding	
8 & 11-digit watersheds with TMDLs	21 & 137
Watershed groups formed to date (some no longer active)	28
Watershed groups formed in 2007	3
Provide public outreach & education	
Published Clearing the Waters Newsletter	3
Participated in children's water festivals and other educational programs	12

New Mexico Wetlands Program Activities

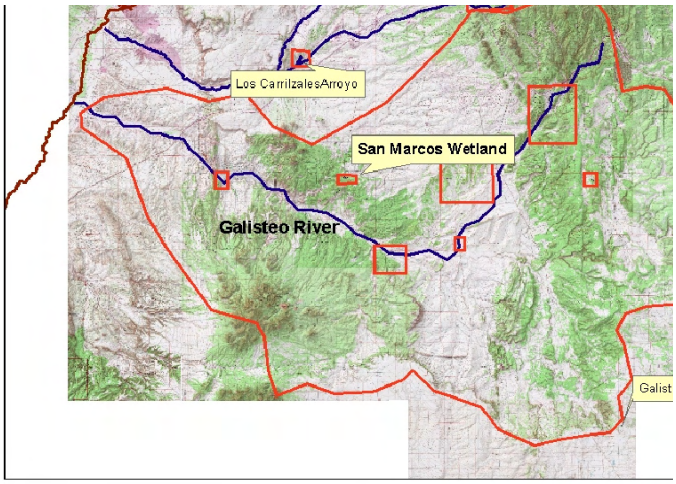
The goals of the New Mexico Wetlands Program are to protect and restore New Mexico's remaining wetlands and riparian areas and to increase self-sustaining, naturally functioning wetlands and riparian areas so they continue to benefit New Mexico's future.

The Surface Water Quality Bureau Wetlands Program Gets Funding for Five New Wetlands Projects

Five new federal grants totaling $812,669 in federal assistance have been approved for funding through the FY07 EPA Wetlands Protection Development Grant Program authorized by CWA Section 104(b)(3). Funding will be awarded to the Surface Water Quality Bureau (SWQB) Watershed Protection Section Wetlands Program this November.

The project funds are for "The New Mexico Wetlands Monitoring and Assessment Strategy, Development of Elements 1 and 2," "Hyperspectral and Multispectral Imagery of 30 HGM Reference Wetland Sites in the Upper Rio Grande Watershed," "Integrating the Use of Biological Indicators and Assessment with Hydrogeomorphic (HGM) Assessment," "Integrating Stream Restoration Principles and Transportation Maintenance," and "Comprehensive Wetland Restoration and Protection in Santa Fe County" projects. All of these projects will be conducted with multiple community and agency partnerships.

"The New Mexico Wetlands Monitoring and Assessment Strategy, Development of Elements 1 and 2" is for the development of a long term strategy to include wetlands monitoring and assessment into the State's Water Quality Monitoring and Assessment Program. Currently, SWQB Wetlands Program is in the process of development and implementation of Hydrogeomorphic (HGM) modeling and assessment for New Mexico wetlands, with a focus on the Upper Rio Grande watershed as the geographic reference domain. Development of regional models will be augmented by "Hyperspectral and Multispectral Imagery of 30 HGM Reference Wetland Sites in the Upper Rio Grande Watershed," project by using hyperspectral and high resolution multispectral imagery to help understand macro-topographic features and aerial extent and type of cover classes for HGM reference wetland sites. This imagery will cover approximately 30 riverine reference sites within the Upper Rio Grande geographic area north of Velarde. This project will complement on-the-ground data collection, existing reference wetland data, and will provide the demonstration of a significant tool for understanding hydrodynamics, variability, and connectivity within the floodplain environment. In addition, "Integrating the Use of Biological Indicators and Assessment with HGM Assessment," will be conducted to develop a macroinvertabrate wetland condition index for riverine wetlands concurrently with the HGM model.



SWQB and the New Mexico Department of Transportation (NMDOT) are partnering to conduct wetlands restoration adjacent to a State Highway to restore 30

Visit the New Mexico Wetlands Program on the SWQB website: www.state.nm.us/SWQB/wetlands

acres of wetlands. “Integrating Stream Restoration Principles and Transportation Maintenance,” involves the innovative method of bioengineering along the West Fork Gila River in southern New Mexico to assist transportation maintenance issues near streams. This project is a coordinated effort to restore wetlands, wildlife habitat (particularly for endangered species), and improve water quality.

In partnership with Santa Fe County and Earth Works Institute, SWQB will work with established watershed groups to restore County wetland areas, to develop a Wetlands Action Plan for portions of Santa Fe County and conduct public education to increase support for wetland restoration and protection. SWQB will undertake a geo-hydrology study to understand local hydrology that creates and supports wetlands in the project area, and to help develop protective measures for local wetlands, seeps and springs.

Galisteo River

New Mexico Surface Water Quality Standards Program Updates

Amendments to the Antidegradation Provisions for Outstanding National Resource Waters

The state’s antidegradation provisions at 20.6.4.8 NMAC are an integral part of the water quality standards. Outstanding National Resource Waters (ONRWs) receive the highest level protection under the provisions. In August 2007, amendments were approved by the state Water Quality Control Commission to allow for temporary and short-term degradation in ONRWs if it will result in “restoration or maintenance of the physical, chemical or biological integrity” of the water. Watershed protection and restoration projects can sometimes result in temporary water quality degradation. For example, the building of an instream structure to slow water velocity may temporarily stir up turbidity. Restoring native riparian vegetation may increase temperature until the new vegetation is established. Repair of a road culvert or wildfire prevention efforts can have similar short-term water quality impacts. The amendments create a narrow exception to the “no degradation” protection provided ONRWs so that such projects can be implemented for the long-term benefit of the ONRW.

The amendments require that approval for temporary and short-term degradation be granted only on a case-by-case basis, that cumulative effects be minimized, that existing uses of the water be protected and that the essential character of the ONRW not be altered. The approvals are granted by NMED or by a designated management agency such as the U.S. Forest Service subject to a Memorandum of Agreement. Piscicide treatments must be approved directly by the WQCC considering the requirements of Section 20.6.4.16 NMAC that became effective in 2005.

The 2007 amendments also include this new language: “Pre-existing land-use activities allowed by federal or state law, and controlled by BMPs, shall be allowed to continue so long as there are no new or increased discharges resulting from the activity after designation of the ONRW.” The provision is intended to address the concerns often expressed by existing land owners and permittees that ONRW designation will impact their existing uses of the land. ONRW designation does not directly affect any land uses, but it is a tool to prevent future water quality degradation from the time of designation forward.

continued on page 9

STANDARDS Continued from page 8...

ONRW Nominations

Forest Guardians petitioned the WQCC to designate the headwaters and tributaries within the Pecos Wilderness and inventoried roadless areas as ONRWs. The hearing was scheduled for July 2007, but the petitioners withdrew their application.

Triennial Review Preparations

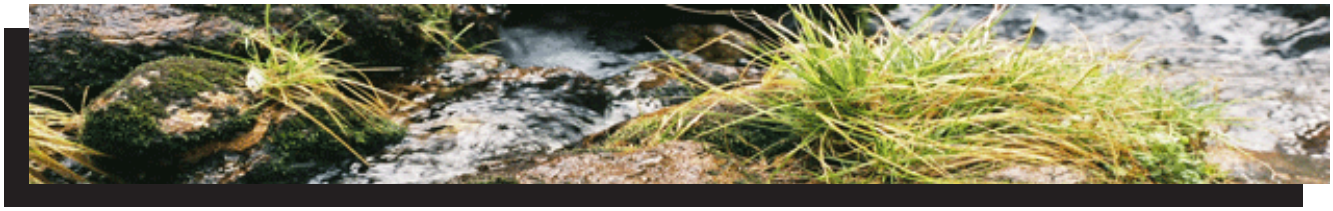
NMED has begun preparations for the next Triennial Review of the state's surface water quality standards. Among the revisions under consideration are refinements of designated uses and criteria assigned to some waters. Where the assigned criteria are ecologically inappropriate, efforts to reduce point-source and nonpoint-source pollution to achieve the water quality standards cannot succeed.

NMED expects to distribute a public discussion draft of proposed amendments in the summer of 2008. Public meetings and opportunities to comment on the draft will follow. The Triennial Review hearing will likely take place in the spring of 2009.

Monitoring & Assessment Program Updates

In 2007 the Monitoring and Assessment Section collected water quality monitoring data for 673 stream miles and 9273 lake acres. Stream miles, lake acres, and assessment units will vary in number depending on which watersheds are being monitored, the size of the assessment units, and the amount of water present in a given year. Watersheds with monitoring activity in 2007 included Chama (199 miles, 9008 acres), Gila (242 miles, 2 acres), San Francisco (24 miles), Gallinas (20 miles), and Pajarito (188 miles).

Year Monitored	Integrated Report Issuance Year	Stream Miles	Lake Acres	# of Stream Assessment Units	# of Lake Assessment Units
2001	2004	895	3,803	69	5
2002	2004	854	13,409	45	3
2003	2007	661	13,932	25	5
2004	2007	711	10,722	48	7
2005	2008	508	1,358	34	2
2006	2008	1,282	15,606	77	14
2007	2010	673	9273	54	19



Nutrient Criteria

Currently, New Mexico has a narrative criterion to determine nutrient impairment, which states, "Plant nutrients from other than natural causes shall not be present in concentrations which will produce undesirable aquatic life or result in a dominance of nuisance species in surface waters of the state" (NMAC 2005). This narrative criterion can be challenging to assess because relationships between nutrient levels and impairment of designated uses are not defined, and distinguishing nutrients from "other than natural causes" is difficult.

To address these problems, the SWQB (in cooperation with EPA and the US Geological Survey) revised New Mexico's Nutrient Assessment Protocol for Streams in 2004 using a more robust weight-of-evidence approach. The weight-of-evidence approach uses both causal (total nitrogen and total phosphorus) and response variables (dissolved oxygen, pH, periphyton chlorophyll a, and benthic macroinvertebrate metrics) for assessment purposes. Threshold values were developed for each of the causal and response variables using literature, EPA guidance, and the national nutrient database. In 2007 total nitrogen, total phosphorus, and chlorophyll a threshold values for wadeable streams were refined using regional data and an improved stream classification system that uses the designated aquatic life use as well as the ecoregion. These values are used to translate the current narrative nutrient criterion into quantifiable endpoints, which can be used in the development of Total Maximum Daily Loads (TMDLs).

During the 2007 field season, the SWQB continued to collect nutrient data for rivers, lakes, and reservoirs as well as some long term monitoring of wadeable streams and compiling of nutrient and diatom data for lakes and reservoirs. The data will be combined with historic datasets to develop appropriate classification systems and Nutrient Assessment Protocols for each waterbody type. The SWQB will continue to use a weight-of-evidence approach in proposing nutrient criteria for rivers, lakes and reservoirs, and eventually wetlands. A Diatom Index of Nutrient Impairment of Stream is under development by The Philadelphia Academy of Natural Sciences and will be incorporated into the assessment protocol on completion.

Total Maximum Daily Load (TMDL) Program Update

TMDLs written/pending Jan - Dec 2007	24
Total TMDLs completed to date	168
8-digit HUC watersheds with TMDLs	19 (out of 83 watersheds)
TMDLs in 8-digit HUCs + impairments for 2007	
Lower Rio Grande	2 TMDLs: bacteria
Rio Puerco	9 TMDLs: aluminum, plant nutrients, temperature
Canadian	13 TMDLs: specific conductance, plant nutrients, sedimentation/siltation, temperature
SWQB met its commitment to EPA for TMDL development for Federal FY 2007 (October 2006-October 2007)	

A complete list of TMDLs can be found on the SWQB website at: www.nmenv.state.nm.us/swqb/TMDL

CWA Section 401 - Discharge of Dredge or Fill Program Activities

Staff continue to process water quality certifications under §401 of the federal Clean Water Act. The purpose of the §401 Water Quality Certification is to ensure that §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.

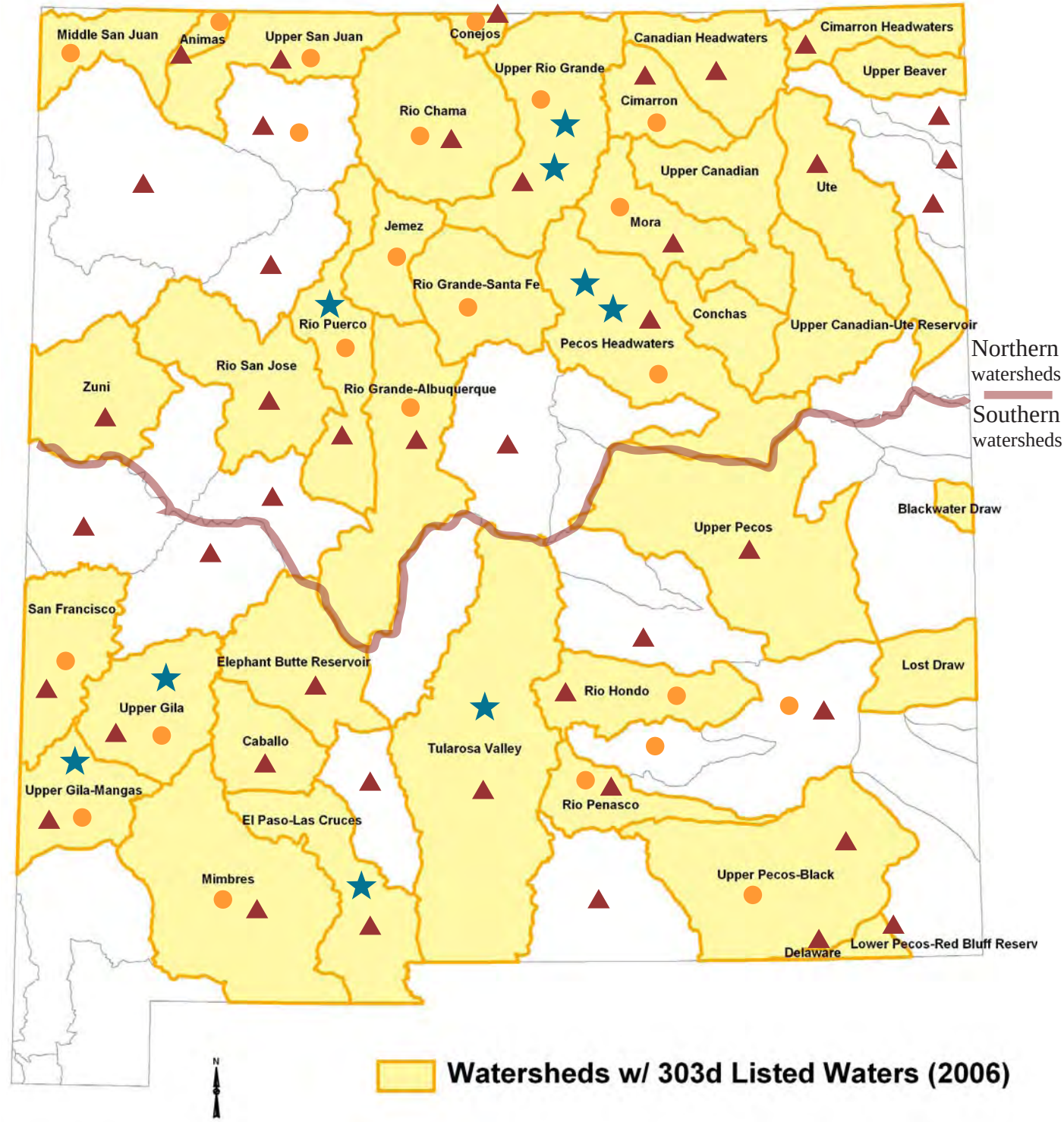
In response to the Corps §404 reissued nationwide permits on March 19, 2007, a Conditional §401 Water Quality Certification for discharges to ephemeral surface water was issued by NMED on March 29, 2007, which is available from NMED SWQB WPS's web site. A project-specific §401 Water Quality Certification 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 Outstanding National Resource Waters (ONRW) designated in 20.6.4.9 NMAC that are authorized by nationwide permits. Projects authorized by individual §404 permits also require a project-specific §401 Water Quality Certification prior to construction. The certifications include a list of conditions to be met by the applicant and ensure that the project is consistent with state law, comply with the state water quality standards, implement the Water Quality Management Plan, including Total Maximum Daily Loads (TMDLs), the Continuing Planning Process, and Antidegradation Policy Implementation Plan.

For this purpose, 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 NMED and New Mexico Department of Transportation (NMDOT) and acts as a main point of contact for §401 Water Quality Certification relating to NMDOT transportation projects. Staff duties related to the §401 Water Quality Certifications include, but are not limited to, coordination, consultation, inspection, and outreach.

Federal Highway Administration Central Federal Lands Project, NM State Rt. 126. Skilled equipment operators remove temporary mats and fill with minimal disturbance to original wetland surface elevations.

CWA Section 404/401 Water Quality Certifications and Actions:	
Nationwide Permit Activities Certified	119
(those in Ephemeral Watercourses)	47
Individual Permits Certified	4
Total	**123**
Other:	
No permit (SWANCC)	1
No permit (Tulloch)	1
No permit (Rapanos/Carabell)	1
No permit necessary (Other)	2
Withdrawn	3
Total	**8**
Other Coordination/Activities:	
Certifications in Progress	18
Complaint	11
Consultation	10
Total	**39**

New Mexico Watersheds with Impaired Waters



Watersheds with TMDLs &/or WRASs

NMED 319(h) projects completed in 2007

Non-NMED agency NPS projects in 2007

For a complete listing and description of impaired waters see the New Mexico 303(d) / 305 (b) Integrated Report available on the SWQB website at: www.nmenv.state.nm.us/swqb/MAS

Summary of 319(h) projects completed by NMED Surface Water Quality Bureau in 2007

Watershed Name	Sub-watershed / Waterbody	Project Name	Project Type (OTG or WGF)	303(d) Listed Impairment	319 Funds	In-kind match	Federal match	Match % of total	TOTAL
Gila/Mangas	Mangas Creek watershed	Mangas Water Quality Project	Stream bank / channel restoration	Nutrients, stream bottom deposits	$ 547,000	$ 371,333	N/A	40%	$ 918,333
Rio Puerco	Rio Puerco	Rio Puerco Above La Ventana Restoration Project	Stream bank / channel restoration	Sedimentation / siltation	$ 545,000	$ 333,333	$ 25,000	40%	$ 903,333
Upper Rio Grande	Rio Costilla	Rio Costilla Tributary Watershed Improvement Project	Grazing / Rangeland management, Fire suppression / Fuels management, Riparian habitat restoration	Stream Bottom Deposits, Turbidity, and Temperature	$ 200,000	$ 133,000	N/A	40%	$ 333,000
Pecos Headwaters	Pecos River	Upper Pecos Watershed: El Valle Watershed Group	Wateshed group formation	Stream bottom depostis	$ 24,099	$ 11,884	N/A	33%	$ 35,983
Upper Gila	Cow Creek watershed	Collaborative Restoration Forestry	Forest thinning / increase groundcover	Turbidity	$ 252,140	$ 180,744	$ 1,000	42%	$ 433,844
Upper Rio Grande	Rio Embudo, Upper Rio Grande	Upper Rio Grande Collaborative Watershed Group Formation Project	Wateshed group formation	macroinvertebrate, sedimentation, turbidity	$ 116,329	$ 79,556	N/A	41%	$ 195,885
El Paso-Las Cruces Watershed	Lower Rio Grande watershed	Las Cruces - El Paso Watershed Council & Plan Development	Wateshed group formation	Fecal Coliform / E. Coli	$ 145,130	$ 134,293	N/A	48%	$ 279,423
Pecos Headwaters	Upper Pecos River	Upper Pecos Watershed Association	Water quality testing / monitoring, Wateshed group formation	Temperature, turbidity	$ 33,700	$ 30,703	N/A	48%	$ 64,403
Tularosa Valley	Three Rivers, Tularosa Creek watersheds	Tularosa Watershed Restoration - Watershed Group Formation	Wateshed group formation	temperature,conductivity, E.Coli	$ 42,900	$ 37,477	N/A	47%	$ 80,377
				TOTALS	$ 1,906,298	$1,312,323	$ 26,000	41%	$3,244,581

Clean Water Act Section 319(h) Grant Projects

The 319 grant program concentrates awards on projects located in watersheds with impaired waters and with completed TMDLs. A WRAS is required to be completed before On-the-Ground projects are initiated.

Though many projects have been implemented under the 319(h) Grant Program, there has been little monitoring to provide data showing the impact of those projects on water quality. Monitoring is included in several project's workplans, results are expected in the next few years. Often it takes 5-10 years of monitoring to acquire conclusive evidence of a project's direct affect on water quality. Challenges for long-term monitoring are present in many project areas and include lack of volunteers, training, and equipment. In many cases, however, anecdotal observations and preliminary monitoring have shown positive effects on water quality particularly with regards to temperature, sedimentation, stream channel morphology, and riparian vegetation.

Projects in the following sections are identified as either Watershed Group Formation (WGF) or On-the-Ground (OTG) to reflect the type of 319 (h) grant funding they received.

Watersheds represented by these projects are listed below along with their 8-digit HUC
(Hydrologic Unit Code number used to identify their location and their relation to smaller or larger watersheds)

Project summaries are grouped according to which 8-digit HUC they fall within

Northern New Mexico Watersheds	Southern New Mexico Watersheds
Pecos Headwaters (13060001)	El Paso-Las Cruces (13030102)
Rio Puerco (13020204)	Gila-Mangas (15040002)
Upper Rio Grande (13020101)	Tularosa Valley (13050003)
	Upper Gila (15040001)

Stewart Meadows, July 2006

Northern New Mexico Watersheds

Pecos Headwaters Watershed

Upper Pecos Watershed Association

Funding: Federal 319(h) $33,700; **In-Kind Match:** $30,703; **Project Total:** $64,403
Project Type: WGF; Water quality testing / monitoring
303(d) Listed Impairments: Temperature, Turbidity
NPS Issues Facing Watershed: loss of riparian habitat, rangeland grazing, road runoff, streambank destabilization, runoff following forest fire.

Project Summary:
Watershed group formation occurred within 6 months of funding because a core group already existed and other groundwork had been completed. This core group was able to develop in-kind match immediately upon project funding. WRAS was completed within 90 days of group formation and was based on an existing TMDL. The focus was on improved identification and characterization of non-attainment of designated uses and on better identification of sources. Consultation was made with specialists regarding aquatic habitat and recreation.

Upper Pecos Watershed: El Valle Watershed Group

Funding: Federal 319(h) $24,099; **In-Kind Match:** $11,884; **Project Total:** $35,983
Project Type: WGF
303(d) Listed Impairments: stream bottom deposits
NPS Issues Facing Watershed: Erosion/sedimentation from roads, upland erosion, land development pressures, stream bank erosion.

Project Summary:
Erosion control projects were successful in demonstrating effective techniques to other watershed stakeholders. Several interpretive tours of demonstration areas were conducted. An erosion control workshop was conducted.

BMPs Implemented:
The project is for watershed group formation. However, several demonstration and outreach projects were completed for the purpose of gaining a higher degree of watershed stakeholder “buy in”. These included: Construction of a rolling dip on County Road B41E, installation of upland erosion control structures (rock dams, baffles and bowls), 4 acres of juniper thinning, and reseeding of thinned area.

Project Results:
A WRAS for this segment of the Pecos River was completed. Three BMP demonstration projects were completed.

Public outreach / education
Much of the labor required to install erosion control structures was provided by local high school students during the summer of 2006. Numerous tours of demonstration projects were also conducted. Project lead and stakeholders gave presentations at local schools, the County Roads Department, and at the local community center. Work conducted under 319 grant was expanded under another grant received from the McCune Foundation. This grant funded a Summer Sustainability Institute whereby seven high school students participated in an intensive 5 week summer course on sustainability/watershed protection.

Project Challenges & Lessons Learned
Final report states: "The biggest challenges we faced with our project were complying with the large amount of paperwork required by NMED, and getting a large community turn out for meetings". Given the administrative requirements of the 319 (h) grant, this group has decided not to seek additional 319 funding for OTG projects.

Meeting of the Upper Pecos Watershed Association

Volunteers at Dia del Rio check out macroinvertebrates from the Pecos River after a morning of river clean-up.

Rio Puerco Watershed

Rio Puerco Above La Ventana Restoration Project

Funding: Federal 319(h) $545,000 ; Match: $333,333 + $25,000(fed); Project Total: $903,333
Project Type: OTG; Stream bank/channel restoration
303(d) Listed Impairments: Sediment / siltation
NPS Issues Facing Watershed: Excessive erosion from natural upland sources, mostly due to highly erodible surface textures, including roads.

Project Summary:
The overall approach has been to close a straight and narrow bypass segment that was steeply channelized in the mid-1960s, and return the river to its broad and gentle gradient natural meandering channel on the east side of the highway. That channelized segment has been responsible for highly accelerated erosion over the past 40+ years that has been estimated as removing and transporting >14.1 million cubic feet of soil, rock, and debris (enough to cover a football field and pile it up almost 300 feet high!). Some zones are no longer narrow, but have been advancing toward the highway roadbase at a rate that clearly concerned DOT engineers and maintenance staff. Halting the excessive erosion and rejuvenating the streamside habitat is fully anticipated to result in improved water quality in this portion of the Rio Puerco's Upper Main Stem.

Project Results:
Three newly constructed river segments, using hard and soft embankment features, transplanted hundreds of willow poles and installing many seedlings and containerized plants to initiate a phase that will assist the river in redeveloping riparian vegetation along its banks and restoring wildlife, avian, and aquatic habitat. That revegetation and seeding efforts, along with construction of in-channel flow management structures is designed to reduce long-term excessive sediment transport.

Rio Puerco North Bridge, July 2006

Planting at Rio Puerco South Bridge, Dec. 2006

Upper Rio Grande Watershed

Rio Costilla Tributary Watershed Improvement Project

Funding: Federal 319(h) $200,000 Match: $ 133,000; Project Total: $333,000
Project Type: OTG; Grazing / Rangeland management, Fuels management, Riparian habitat restoration
303(d) Listed Impairments: Stream Bottom Deposits, Turbidity, and Temperature
NPS Issues Facing Watershed: Agriculture, Hydromodification, Riparian Vegetation Removal, Streambank Modification/De-stabilization Road Maintenance Runoff

Watershed Description: Rio Costilla is located along the Colorado and North Central New Mexico Border. Water flows along the villages of Amalia and Costilla. There are mostly clayish type soils with rock outcrops along high elevation slopes. Agriculture, hunting, and fishing support the local economy.

Project Summary:

- Sagebrush/Pinon Juniper removal of a 250 acre target area was followed by the re-seeding of the project site.
- Plan and implement the clearing of overgrowth in targeted wetland sites with a goal of restoring surface water quality in three drying seeps/springs. Site Names for reference are: Ojito at Canada Bonita, Sanchez Creek Ojito, Latir Lake Seeps.
- Thin the dense overstory and dead-wood fuel areas adjacent to the riparian area along both sides of two miles of the creek watershed to develop a grass filtration system that will help release a higher volume of water of improved quality. Incorporate fire hazard mitigation efforts that can help prevent the adverse effects of wildfires within the watershed.

Rio Costilla Watershed

Public Outreach / Education:

- The members of the RCCLA Cattle Growers and Wildlife Committees will be invited to the project sites and will evaluate the final results. Guest speakers will include the Taos Soil and Water Conservation District Representative, SWQB, Ron Martinez Project Officer, and the RCCLA employees involved in the project.
- Children from the Amalia, Costilla, Questa, and San Luis (Colorado) school systems will be offered the opportunity to visit the project sites as part of a Science Fair field trip. The coordinator for the visit will be Debbie Garcia, RCCLA member and a science teacher.

Project Challenges & Lessons Learned:
Positive cooperative & networking atmosphere. Issues with weather & labor contract hold ups (thinning).

Improvements to water quality:
Samplings will be conducted at yearly intervals according to SWQB monitoring schedules. These sampling sites will indicate well into the future the improvements that will occur with this project. We have already observed an increase in grass forage at sage and pinon / juniper removal sites. We expect this activity to help reduce water pollutants entering Costilla Creek.

Upper Rio Grande Collaborative Watershed Group Formation Project

Funding: Federal 319(h) $116,329 Match: $ 79,556; Project Total: $195,885
Project Type: WGF, planning
303(d) Listed Impairments:
Rio Pueblo, Rio Santa Barbara, Rio Embudo: deficient benthic macroinvertebrate communities (specific pollutants to which these impairments could be attributed were not identified).
Rio Santa Barbara, Rio Chiquito: turbidity.
Rio Embudo: sedimentation and turbidity.
Rio Grande: deficient benthic macroinvertebrate communities and turbidity.

Watershed Description:
The Upper Rio Grande Watershed is quite large, covering more than 7,500 square miles. NMED has supported watershed planning and watershed group formation in smaller sections more conducive to planning.

Within the area for this project includes a section of the Rio Grande designated a Wild and Scenic River used for rafting, kayaking, swimming, painting, introspection, and fishing. Also in the area are private homes, small family farms, orchards, agricultural fields, extensive acequia systems that define a green belt within the valley floor and contribute to the hydrological and agricultural systems. There is a desire in the traditional agricultural communities to keep the cultural ties to the land and food production alive and active, even as properties are subdivided and the natural function of the land continues to change. The Rio Grande corridor is also an important migratory bird pathway with extensive riparian and wetland areas.

NPS Issues Facing Watershed:
- Effects of potential wildfires due to fire suppression and resulting unnatural fuel accumulations.
- Large amounts of sediment and turbid water delivered to the Rio Grande and lower Rio Embudo from arroyos, OHV use, and watershed disturbance from current and past grazing practices.
- Degraded wetland and riparian conditions
- Loss of woody riparian vegetation on private grazing lands riparian grazing lands contributes to turbidity and sediment loading.
- Continuing loss of the agricultural base and accompanying acequias
- Illegal dumping
- Wastewater management (large number of unregulated septic systems in use)
- Gravel mining

Project Summary:
The objective of the project was to develop three working watershed groups to work locally within their communities. One group was focused on the Rio Embudo tributary valleys and watershed area, one group focused on the Embudo Valley below Embudo Canyon, and one group focused on the Rio Grande Valley. These groups were formed to develop stakeholder-based strategies for implementing best management practices to improve and maintain water quality and associated resources. The watershed groups developed two watershed management plans – one for the Rio Embudo Watershed, and the other for the Rio Grande Watershed. The plans are available on the internet at www.nmenv.state.nm.us/swqb/wps, in a drop down menu titled "Watershed Planning".

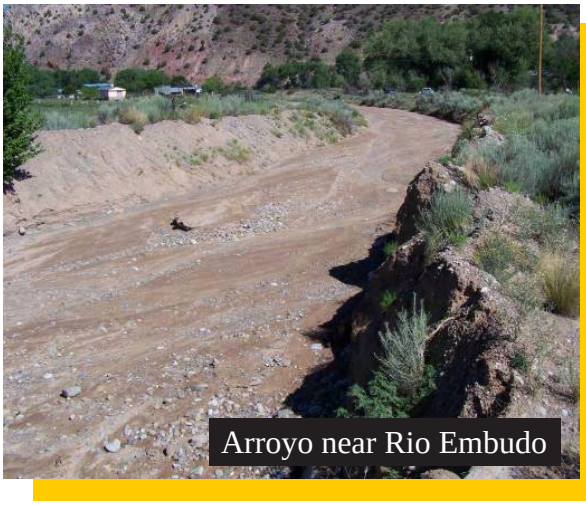
Public Outreach / Education:
The primary activities of the project consisted of engaging, informing, and involving watershed residents in three watershed groups. In the process, numerous local experts and guest speakers shared their knowledge, participants learned new aspects to local problems in a neutral forum, and educational goals were established for promoting the objectives of the watershed management plans after the project term

Project Challenges & Lessons Learned:
The project successes include recognition within communities of the need for active watershed management, and recognition within government and land management agencies of the need to collaborate with the local communities to address landscape and water issues. The project participants credit much of the success of the project to the participating agencies having worked from within the communities and allowed them to direct the process.

The several stream reaches with impairment for which a causative pollutant or condition has not been identified were a challenging subject for participants to understand and discuss. That the turbidity standard changed from a numeric to narrative standard within the project term may cause SWQB to re-open the turbidity TMDL's, and until then these streams may not be eligible for Section 319 funds. The technical challenge of measuring a reduction in sediment loading coupled with a desire by SWQB to measure improvements in water quality may similarly prevent eligibility for funding of projects to implement the sedimentation TMDL of the Rio Embudo. While other funds and programs exist for BMP implementation, interruption of the problem-identification to problem-solving cycle which SWQB normally supports compromises the investment that this project constitutes, and has been disappointing to the project participants.

Improvements to water quality:
Each of the watershed groups and key participants within each group are now much better informed regarding water quality issues and best management practices, and are now in a stronger position to seek funding to implement projects.

Levees on Rio Santa Barbara


Arroyo near Rio Embudo

El Paso-Las Cruces Watershed

Las Cruces-El Paso Watershed Council & Plan Development

Funding: Federal 319(h) $145,130 ; Match: $134,293; Project Total: $279,423
Project Type: WGF
303(d) Listed Impairments: Fecal Coliform / E. Coli

Watershed Description:
The target area for the project is the lower Rio Grande Watershed from Percha Dam to the NM-TX state line. The project area includes a mix of desert uplands, farmland and urbanized areas.

NPS Issues Facing Watershed:
Non-point source pollution water quality issues are both complex and diverse in the watershed. The Bureau of Land Management is the majority land manager within the project area, managing 58% of the watershed. Private landowners account for 22% of the watershed and the State of New Mexico accounts for 16%. Forest Service and the Department of Defense comprise 3% and 1% respectively. Much of the watershed is experiencing rapid growth, and as a result, land use is changing. While agriculture remains a mainstay of the local economy, Las Cruces is the fastest growing metropolitan area in New Mexico. The whole region's population is growing rapidly (2.9% average annual growth rate for Doña Ana County between 1990 and 2000, versus 1.31% for the U.S.), resulting in rapid conversion of farmland and open space to urban/suburban development. As a result, not only are there multiple causes and sources of impairment, but changing land and water uses are changing the balance of these impairments.

Project Summary:
The project applicant is the Paso del Norte Watershed Council (PdNWC) which was established in 2000 to improve the Rio Grande ecosystem and water quality in the sub-basin between Elephant Butte Dam and Fort Quitman TX. To address the complex issue of E. coli impairment the PdNWC recognized the need to involve a wide spectrum of the New Mexico community within the watershed. The PdNWC utilized its present contacts and resources to develop a watershed group of local stakeholders from such diverse groups as the farming and ranching community, the Elephant Butte Irrigation District, conservation interests, environmental groups, and city, county, flood control commission and other government entities. A Draft "Paso del Norte Watershed Restoration Action Strategy" was submitted to NMED on December 20, 2007.

Public Outreach / Education:
The PdNWC intends to continue developing stakeholder involvement through public meetings, and continue to solicit stakeholder input to further refine the Paso del Norte Watershed Action Strategy.

Project Challenges & Lessons Learned:
The stakeholder outreach consultant identified specific key informants that have a direct managerial capacity related to the probable sources of impairment in this section of the river. These key informants were interviewed to learn more about management issues, gain respect and trust from each stakeholder group, and provide a balanced narrative for other stakeholders to learn about each other. Much of the stakeholder engagement consisted of individual or small group meetings to build a sense of trust.

While this approach facilitated communication with individual stakeholders which yielded valuable information and concerns, it was limited in pulling together a larger stakeholder workgroup. Future plans for stakeholder engagement include convening larger stakeholder meetings to obtain a greater sense of overall community concerns, facilitate communication between stakeholders, and to form work groups to address specific issues.

Improvements to water quality (observed / expected):
No improvements to water quality were achieved with this project. Following implementation of recommendations outlined in the WRAS, water quality improvements are anticipated.

Mangas Creek Watershed

Mangas Water Quality Project: Phase II

Funding: Federal 319(h) $547,000 ; Match: $371,333; Project Total: $918,333
Project Type: OTG
303(d) Listed Impairments: Nutrients, stream bottom deposits
NPS Issues Facing Watershed: Excessive erosion problems from natural upland sources due to heavy brush component and related shallow/bare ground, including roads. Water quality problems in the Mangas watershed have a 100-year history of land managers and property owners doing what was thought to be correct at the time but now understood to be short sighted.

Project Summary:
The Mangas Water Quality Project Phase II returned fire to the ecosystem of the Burro Mountains. As a result, over time, the tree and shrub component of the plant community will be reduced and herbaceous vegetation will increase. Sheet type soil erosion will be reduced. Because of variable conditions the prescribed burns were conducted in the spring & fall months of the year. Pinyon-juniper woodlands historically burned during spring months. The lack of fine fuels, characteristic of this forest type, requires dry conditions and light winds to carry the fire across the landscape. Many practical matters were considered when planning a burn. Availability of fire fighting equipment, manpower to conduct the work as well as contain the fire within the predetermined boundaries, fuel moisture, wind speed and many others. Roads and natural barriers determined the perimeter of the fire. Grant SWCD supervisors along with Natural Resources Conservation Service served as labor during the burns and facilitators of the planning, funding and reporting process. The US Forest Service fire staff wrote the prescriptions and conduct the burns.

Mangas Watershed Project Area

Project Results:
To date, 35% to 75% of 50,000 project acres have been successfully burned to control unwanted brush. Over 254 dirt sediment structures have been built with two rock header structures to control grade unstable drainages. To track erosion, the Hillslope Erosion model has been installed to monitor the affects of burning compared to sites that were protected from fire. Line-point intercept transects along with biomass plots measure the undisturbed areas and burn areas for comparison.

Tularosa Valley Watershed

Tularosa Watershed Restoration-Watershed Group Formation Project

Funding: Federal 319(h) $42,900 ; Match: $37,477; Project Total: $ 80,377
Project Type: WGF
303(d) Listed Impairments: Three Rivers: 2004-2006 Integrated Report listed as not supporting its designation as a High Quality Cold Water Fishery; temperature and conductivity listed as probable causes. 2006-2008 ROD removed temp and cond. and added E. Coli.
Tularosa Creek: 2004-2006 Integrated Report listed as not supporting its designation as a High Quality Cold Water Fishery; loss of riparian habitat probable cause; de-listed in 2006-2008 ROD.

Watershed Description:
The project area is located on the eastern edge of the Tularosa Valley Watershed in Otero County and forms the geographic divide between Sierra Blanca and the Sacramento Mountains. The project area consists of Tularosa Creek and adjoining tributaries on the southern portion and Three Rivers and adjoining tributaries on the northern extent.

Tularosa Creek flows westward for approximately 16 miles passing through the community of Bent and the Village of Tularosa before infiltrating into playas which form the Tularosa Basin. Major uses in the Tularosa Creek watershed and adjacent drainages includes livestock grazing, timber production and harvesting, irrigated agriculture, recreation and urban development.

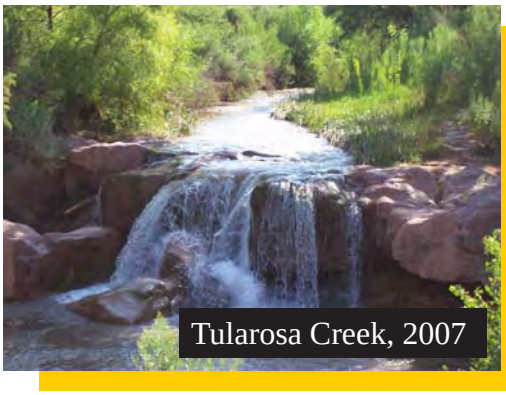
The Three Rivers tributary flows for 11 miles and is the longest within the sub-watershed and also terminates in the playas of the Tularosa Basin. Major uses in the Three Rivers watershed and adjacent basins include livestock grazing, timber production and harvesting, and recreation.

NPS Issues Facing Watershed:
Removal of streambank and upland vegetation, and streambank modification which have resulted in severe erosion are the greatest contributors of non-point source pollution facing both the sub-watersheds. Extensive gullying in both the uplands and riparian areas occur throughout the Tularosa watershed. Some of the lower portions of Tularosa Creek are incised by as much as 30 feet. This leads to extensive mobilization of soils during runoff events with the likelihood of co-transport of other pollutants.

Project Summary:
The Tularosa Watershed Restoration project consists of a program to develop a watershed group comprised of landowners, concerned citizens, and other interested stakeholders within the project area. This was accomplished through public meetings, and contacting potential stakeholders identified by state and local agencies. The public meeting format was utilized throughout the process to provide an open forum to discuss stakeholder concerns, and identify Best Management Practices (BMP's) to improve the watershed health. Successful formation of the watershed group lead to the development of the "Three Rivers Creek and Tularosa Creek Watershed Restoration Strategy" Watershed Restoration Action Strategy (WRAS). The "Three Rivers Creek and Tularosa Creek Watershed Restoration Strategy" was submitted to NMED on December 19, 2007.

Public outreach / education
The WRAS is available to the local Soil and Water Conservation District and NRCS staff to utilize the fur-

ther engagement of stakeholders and recommend and plan on-the-ground water quality improvement projects.


Tularosa Creek, 2007

Project Challenges & Lessons Learned
The greatest challenge to the project was the initial loss of the project manager who was called to active military duty in early July 2006. It was also decided that to maximize stakeholder engagement in this project, it would be beneficial to collaborate with the Otero Soil and Water Conservation District (Otero SWCD). The project was split between two separate entities with the initial budget and tasks divided between the BLM and Otero SWCD. In January 2007 a retired BLM Rangeland Management Specialist was placed under temporary contract by the BLM, and became the new project coordinator. The District Manager with the Otero SWCD agreed to provide organizational and administrative support. The resulting collaboration proved to be beneficial for both stakeholder engagement and project accounting and reporting.

Upper Gila Watershed

Collaborative Restoration Forestry

Funding: Federal 319(h) $252,140 ; Match: $180,744 + $1,000(fed); Project Total: $433,844
Project Type: OTG; Forest Thinning; Fuels management / Prescribed fire
303(d) Listed Impairments: Turbidity
NPS Issues Facing Watershed: Forest thickening (lack of fires) and logging practices.

Project Summary:
The primary goals of the project were to restore herbaceous ground cover and reduce the risk of a stand replacing fire in order to reduce and prevent soil erosion in the Cow Creek watershed while supporting and creating sustainable local livelihoods in Grant County, New Mexico. Logging equipment specialized for small diameter tree removal with emphasis on minimizing environmental impacts and reducing operating costs was used. The Yarder/Forwarder is essentially a scaled down off-road, self-loading, winching log truck. The platform is a small (8000#) articulated off-road tractor and trailer with high floatation tires to minimize soil disturbance. On the platform are mounted a small knuckleboom grapple loader and a winch.
Ecological objectives will be obtained by improving forest function, composition and structure, by reducing tree density and enhancing horizontal and vertical diversity.

BMPs Implemented:
Low impact tree thinning

Project Results:
Ecological objectives will be obtained by improving forest function, composition and structure, by reducing tree density and enhancing horizontal and vertical diversity.

Project Challenges & Lessons Learned:
The cooperators did not follow through with plans for monitoring.

Other Projects in New Mexico Directed at NPS Issues in 2007

Summary of Projects Completed by Non-NMED Agencies

Bureau of Land Management (BLM), Natural Resource Conservation Service (NRCS), New Mexico Department of Transportation (NMDOT), New Mexico State Forestry Division (NMSF), Soil and Water Conservation Districts (SWCD), United States Forest Service (USFS).

These land management agencies completed various projects around New Mexico that ultimately contribute to the reduction of nonpoint source pollutants in surface waters. The most common NPS issues that are being addressed are: excessive erosion (due to over-grazing, vegetation removal, or fire), sedimentation, encroachment of exotic vegetation, stream bank stability, excessive nutrients and excessive water temperature.

*No status of water quality results or water quality improvements was reported by agencies to NMED

Northern Watersheds	Southern Watersheds
Animas (14080104)	Arroyo del Macho (13060005)
Arroyo Chico (13020205)	Caballo (13030101)
Blanco Canyon (14080103)	Carrizo Wash (15020003)
Canadian Headwaters (11080001)	Delaware (13070002)
Carrizo (11090104)	Elephant Butte Reservoir (13020211)
Chaco (14080106)	El Paso-Las Cruces (13030102)
Cimarron (11080002)	Jornada Draw (13030103)
Cimarron Headwaters (11040001)	Lower Pecos-Red Bluff (13070001)
Conejos (13010005)	Mimbres (13030202)
Mora (11080004)	Plains of San Agustin (13020208)
Pecos Headwaters (13060001)	Rio Hondo (13060008)
Punta de Agua (11090102)	Rio Penasco (13060010)
Rio Chama (13020102)	Rio Salado (13020209)
Rio Grande-Albuquerque (13020203)	Salt Basin (13050004)
Rio Puerco (13060010)	San Francisco (15040004)
Rio San Jose (13020207)	Tularosa Valley (13050003)
Rita Blanca (11090103)	Upper Gila (15040001)
Upper Rio Grande (13020101)	Upper Gila-Mangas (15040002)
Upper San Juan (14080101)	Upper Pecos-Black (13060011)
Ute Creek (11080007)	Upper Pecos-Long Arroyo (13060007)
Western Estancia (13050001)	
Zuni (15020004)	

Northern New Mexico Watersheds

Bureau of Land Management Projects:

Farmington Field Office:

Watershed (s)	Brief Project Description	Water Quality Impact Addressed
Animas Blanco Canyon	Roads: Closed and reseed roads. Maintained 700mi., reconstructed 25mi	Reduce erosion and sedimentation to waters in the San Juan Basin.
Animas Blanco Canyon Upper San Juan	~600 drilling permits - associated BMP: 1200 small silt traps being constructed.	Reduced runoff, soil erosion & sedimentation. Increased water infiltration
Upper San Juan	Hydromowing- Selective thinning of 400 acres Pinyon-Juniper and sagebrush	Reduce runoff, soil erosion, & sedimentation. Increase herbaceous vegetation growth. Increase infiltration.
Upper San Juan	Riparian fence to exclude livestock from 5 acres of riparian area.	Protect / restore riparian vegetation. Reduce sediment transport.
Upper San Juan	Silt fence barriers to curb channel & bank erosion & promote riparian vegetation establishment and growth.	Reduce bank and channel erosion. Reduce sedimentation and salt loading to San Juan River. Protect down stream riparian area, promote new riparian vegetation.
Upper San Juan Chaco	Sagebrush thinning of approximately 7500 acres	Reduce runoff, soil erosion, & sedimentation. Increase water infiltration. Increase herbaceous plant growth.

Rio Puerco Field Office:

Watershed (s)	Brief Project Description	Water Quality Impact Addressed
Rio Puerco	Stabilize severely eroding banks of the Rio Puerco near Cabezon. Move channel away from foot of the vertical walls & prevent lateral erosion.	Reduce sediment loads to Rio Puerco, protect Cabezon from further lateral river erosion. Lessen excessive amounts of deposition onto downstream point bars, limit lateral erosion of the cut banks.

Taos Field Office:

Watershed (s)	Brief Project Description	Water Quality Impact Addressed
Upper Rio Grande	456 acres tree and shrub thinning; 700 acres sagebrush removal and reseeding; developed or maintained 9 livestock water sources	Reduce sedimentation, turbidity and temperature impairments
	1acre Salt Cedar removal, replanted with willow & cottonwood; Fenced 50 acres riparian/floodplain to prevent OHV/ATV use	Reduce sedimentation and turbidity
	Monitored 3 sites on Rio Grande, 2 sites on Rio Embudo and 1 site on Agua Caliente	Assess impairments to Temperature, Bacteria, pH, Nitrate and Phosphorus

Rio Puerco near Cabezon:
Mass failure of a 35-foot high arroyo wall into the active channel.

Socorro Field Office:

Watershed (s)	Project Type	Water Quality Impact Addressed
Rio Grande-Albuquerque	Removal and thinning of 160 acres of one seeded juniper.	Reduce erosion potential; increase herbaceous plant growth and densities; increase water infiltration.
	Construct 15 erosion control structures.	Reduce down stream sediment loads & erosion; stabilize head cuts & channel down cutting; trap sediments and decrease water velocities.
	Construct 10 erosion control structures to stop down cutting on riparian/spring fed drainage.	Decrease channel down cutting & loss of riparian habitat; increase riparian species and sediment trapping.
Rio Puerco	1800 acres Juniper thinning & removal	Reduce runoff, soil erosion, & sedimentation; increase infiltration, herbaceous plant growth, & biodiversity
	Construct 70 earthen structures	Reduce downstream sediment loads & erosion; stabilize head cuts & channel down cutting; trap sediments & decrease water velocities.

Northeastern Soil & Water Conservation District Projects:

Watershed (s)	Project Type	Water Quality Impact Addressed
Carrizo	Lepa Conversion, 1000 acres	Reduce Water Usage
Cimarron Headwaters	Salt Cedar/Pinon Juniper Control-1583 acres	Increases Water Table & water flow. Reduce runoff
Cimarron Headwaters	Chem Valve	Keep Chemical out of water source.
Punta de Agua	Converted 228 irrigated acres to dry land	Decrease Water Usage
Rita Blanca	23,000 feet of Terraces	Erosion Control

Ute Creek & Mesa Soil and Water Conservation District Projects:

Watershed (s)	Project Type	Water Quality Impact Addressed
Ute Creek	Removed 1,034 acres Salt Cedar	Increase water table level & flow; stream bank stabilization & riparian area protection

NM State Forestry Division Projects:

Watershed (s)	Project Type	Water Quality Impact Addressed
* listed below	Timber Harvests in Ponderosa/Mixed Conifer Forests; Waterbarring and seeding of critical areas	Reduce runoff, erosion, sedimentation due to increased herbaceous ground cover and waterbars; Increase water infiltration
Canadian Headwaters, Cimarron, Mora, Pecos Headwaters, Rio Chama Upper Rio Grande, Zuni		

US Forest Service Projects:

Cibola National Forest:

Watershed (s)	Project Type	Water Quality Impact Addressed
Rio Grand-Albuquerque	Restore riparian habitat on Cedro Creek and Limestone Canyon by installing in-channel structures and planting riparian plants	Increase water table level, stream meandering, & stream length; Improve stream channel and stream bank stability; Enhance riparian habitat
Rio Grande – Albuquerque	Thinned 500 acres for pre-burn treatment	Raise water table level, Increase soil surface cover, reduce erosion and sedimentation
Rio Grande-Albuquerque, Western Estancia	Thin 149 acres of ponderosa pine	Raise water table level; Increase soil surface cover, reduce erosion and sedimentation
Rio San Jose	Broadcast burn on 2815 acres that were previously thinned	Reduce fuels and the potential for heat damage to soils; Limit post-fire runoff, erosion and sedimentation
Rio San Jose; Arroyo Chico	Meadow Restoration on 242 acres by removing encroaching ponderosa pine and pinyon/juniper	Raise water table levels; Maintain meadow for runoff filtering and capture of sediment
Rio San Jose, Western Estancia	Pinyon/Juniper thinning on 1347 acres	Increase water table level; Reduce runoff and erosion
Western Estancia	Pile burn slash from 2004 thinning on 170 acres	Reduce fuels & potential for heat damage to soils; Limit post-fire runoff, erosion and sedimentation

Carson National Forest:

Watershed (s)	Project Type	Water Quality Impact Addressed
Blanco Canyon	Road maintenance to Gold Book Standards to support oil and gas production.	Reduce road erosion and sedimentation; Improve road conditions
Rio Chama	Re-constructed Jarosa and Mogote allotment boundary fence (3 miles)	Improve livestock distribution and forage use; Control livestock distribution; Improve forage conditions
	Grazing management - 7% reduction in permitted grazing numbers in 2007.	Reduce grazing impacts; Increase herbaceous vegetation; Reduce erosion and sedimentation
	319 Project Implementation: earthen dam construction, guzzler (trick tank) construction, spring re-construction, cattleguard installation, construct/maintain 5 miles allotment boundary fence	Provide alternative sources of water; Protect/enhance riparian vegetation; Increase water table and flow; Improve livestock distribution and use; Control livestock distribution
	Fuel Reduction – Rx Burn (2,200 ac)	Reduce hazardous fuel loading, runoff, erosion, & sedimentation; Promote/increase herbaceous vegetation; Improve vegetative structure
	Invasive Species Control (4 ac) – mechancial	Invasive species treatment and control; Re-establish native/desired species; Improve vegetative conditions; Increase herbaceous plant growth
	Post fire erosion control – Pine Canyon Burned Area (150 acres)	Re-establish herbaceous vegetation; Reduce runoff, erosion, sedimentation; Improve wildlife habitat
	Wild Horse & Burro Mgmt. – removed 70 head from Jarita Mesa Territory	Minimize livestock impacts to watershed; Improve/increase herbaceous vegetation; Reduce runoff, erosion, sedimentation
Upper San Juan	Wild Horse & Burro Mgmt. - Removed 14 head from Jicarilla Territory	Reduce impacts of year round grazing in highly utilized area; Improve herbaceous vegetation
	Fuel Reduction – Rx Burn (450 ac)	Reduce hazardous fuel loading, runoff, erosion, sedimentation; Promote/increase herbaceous vegetation; Improve vegetative structure
	Removal of Salt Cedar (5 ac) - protective fencing of cottonwoods and willows	Invasive species treatment and control; Re-establish native species; Improve riparian habitat; Increase herbaceous plant growth
Upper San Juan & Blanco Canyon	Construction of 22 sediment traps in partnership with oil and gas companies	Reduce water runoff from oil and gas development; Capture and hold sediment on site
	Grazing management - 44% reduction in permitted grazing numbers in 2007	Reduce grazing impacts, erosion, & sedimentation; Increase herbaceous vegetation

Watershed (s)	Project Type	Water Quality Impact Addressed
Cimarron *ONRW (Middle Ponil Creek)*	Middle Ponil watershed improvement: Install 18 erosion control structures (rock dams)	Stabilize headcuts associated with historic grazing activites; Reduce sources of sediment; Improve/enhance riparian wetland vegetation and habitats
ONRW (Ring Drainage)	North Ponil watershed improvement: Maintain and restore function to 53 erosion control structures (one rock dams) below Ring Ranch (ephmeral tributary to North Ponil Creek in the Valle Vidal.	Enhance and restore riparian wetlands to improve proper functioning condition; Stabilize stream banks; Reduce sources of sediment during periods of flow; Improve/enhance riparian wetland vegetation and habitats
ONRW (Seally Canyon)	North Ponil watershed improvement (Valle Vidal): Maintain and restore function to 60 erosion control structures (one rock dams)	Enhance and restore riparian wetlands to improve proper functioning condition; Stabilize stream banks; Reduce sources of sediment during periods of flow; Improve/enhance riparian wetland vegetation and habitats.
ONRW (Whitman Vega)	Whitman Vega watershed improvement (Valle Vidal): Maintain and restore function to 30 erosion control structures (one rock dams)	Stabilize ephemeral drainage channels associated with historic grazing activities; Reduce sources of sediment during periods of flow; Improve/enhance upland vegetation adjacent ephemeral channels
Conejos	Stewart Meadows (CWA 104 b3 grant): Removed interior fencing, Built fence along northern rim to exclude access by cattle, Maintained top rail fence	Protect/enhance riparian and wetland vegetation; Reduce grazing impacts; Improve wetland conditions

Middle Ponil

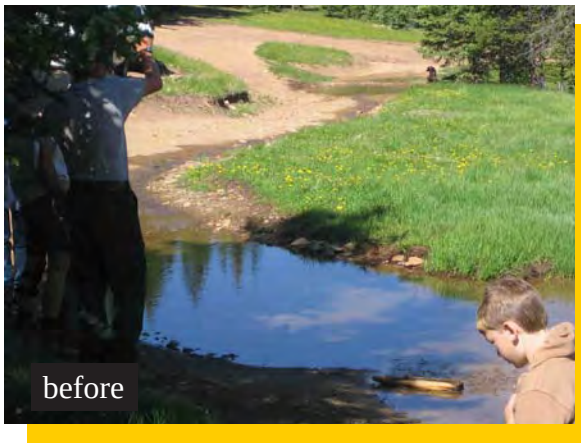
Erosion Control Structures

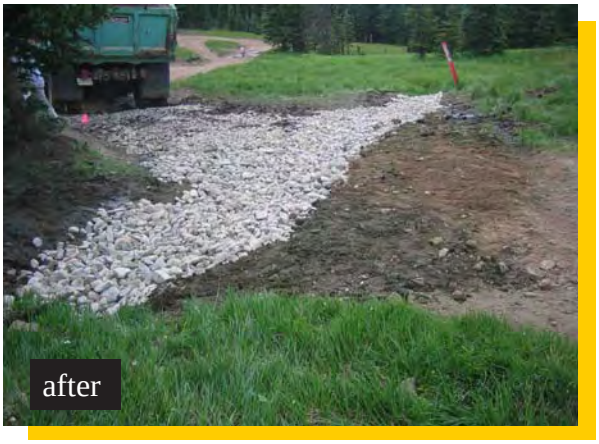
Whitman Vega

North Ponil

Watershed (s)	Project Type	Water Quality Impact Addressed
Red River	Abandoned Mineland Reclamation – Pioneer Creek – 3,600 cy removed, 100 feet riparian rehab; Placer Creek – 6,700 cy removed, 200 feet riparian rehab	Reduce or eliminate exposure of surface water to mine waste and tailings; Reduce sediment delivery; Improve riparian vegetation and habitat; Reduce/eliminate potential exposure to contaminated materials
	OHV Management/Improvements- Install Kiosk with location map of OHV routes and highlights of NM OHV laws; Funding of OHV patrol officer for Red River area.	Reduce runoff, erosion and sediment delivery; Reduce unauthorized road development; Maintain vegetation integrity along OHV routes; Public education for compliance with NM OHV laws and FS regulations
	OHV Improvements, Volunteer Work Day	Reduce runoff, road erosion, & sediment delivery; Enhance/protect riparian/wetland vegetation
	Trail Management/Improvements - drainage structures, restoring tread surface, new drain structures,trail clearing/maintenance	Reduce runoff, trail surface erosion, &sediment delivery to adjacent stream channels
	Goose Creek/Goose Lake watershed improvement - Fisherman access trail hardening	Reduce sources of sediment entering Goose Lake from access trail adjacent the lake
Upper Rio Grande	Grazing Management – 29% reduction in permited grazing numbers in 2007; Constructed stock pond; Invasive Species Control (100 ac)	Reduced grazing impacts, erosion, & sedimentation; Increase herbaceous vegetation; Improve livestock distribution by reducing numbers & by drawing grazing ungulates into uplands away from bottoms; Re-establish native/desired species
	Road Maintenance and Management – culvert installments and heavy maintenance	Reduce road erosion and sedimentation; Improve road conditions; Provide control of road runoff
	Fuel Reduction – Rx burn 405 ac, Thin/pile burn 160 ac, Thin 240 ac	Reduce hazardous fuel loading, runoff, erosion and sedimentation; Promote/increase herbaceous vegetation; Improve veg. structure
	Recreation and Trail Management- Maintained 20 miles of forest trails; Removed windfall trees on 7 miles of wilderness trail	Improve trail conditions,drainage, & tread; Reduce erosion and sedimentation by directing recreational use to established trails
	Fuel Reduction – Rx Burn (800 ac)	Reduce hazardous fuel loading, runoff, erosion, & sedimentation; Promote/increase herbaceous vegetation; Improve veg. structure
ONRW (Comanche Creek)	Comanche Creek channel stabilization/habitat improvement (319 Grant)- Plant willow slips; Enhance riparian vegetation restoration; Install 37 wood post vanes to stablize stream banks	Stabilize stream banks; Reduce sources of sediment from meander bends; Restore/enhance floodplain development & proper fuctioning condition; Improve/enhance riparian wetland vegetation and habitats; Improve native Rio Grande cutthroat trout habitats
ONRW (Comanche Creek)	Comanche Creek watershed improvement: Stabilize wetland headcut with rock dam & riprap support; Create raised inlet to culvert that drains area across road	Reduce threat to loss of wetland function & associated riparian vegetation; Maintain flow of water contributions to Comanche Creek

Red River Watershed - OHV Improvements on Jiron Creek





Project Spotlight

Abandoned Mineland Clean-Up
Pioneer Creek/Placer Creek – Red River Watershed

Under CERCLA authority, the U.S. Forest Service conducted a Removal Action to address environmental concerns from abandoned mines in the Pioneer Creek and Placer Creek watersheds. The concerns were related to the release of metals into the creeks from waste rock associated with the past mining operations in the Red River Mining District. At several sites, waste rock was dumped in the floodplain where they may be contacted by streams during high flows. The removal actions focused on restoration of the natural environment, improvement of water quality and the reduction or elimination of the potential exposure of humans and wildlife to contaminated materials. Previous investigations of the Red River Mining District identified lead and arsenic as primary contaminants of concern, with occasional samples having elevated concentrations of antimony, barium, copper, cobalt, magnesium, mercury, nickel, selenium, and/or silver that exceed site specific background levels.

In the Pioneer Creek Watershed, the project included the excavation and removal of approximately 3,598 cubic yards of waste material, the reconstruction of approximately 100 feet of stream bank.

In the Placer Creek Watershed, the project included the excavation and removal of approximately 6,690 cubic yards of waste material, the reconstruction of approximately 200 feet of stream bank.

Placer Creek consolidation cell – final grade with erosion control measures in place.

Streambank re-constuction utilizing rock and root wads at Midway Tunnel Prospect.

Southern New Mexico Watersheds

Bureau of Land Management Projects:

Carlsbad Field Office:

Watershed (s)	Project Type	Water Quality Impact Addressed
Delaware, Upper Pecos-Black	Streamflow monitoring on Delaware River and Black River	Monitor streamflow parameters: discharge, temperature, conductivity, pH, oxidation-reduction potential, turbidity, and DO
Upper Pecos-Black	Habitat Restoration; Remove caliche, re-contour pad/road to, reseed with native grasses.	Reduce bare ground, increase cover; Reduce runoff, increase infiltration
	Erosion Control on old pad, in drainage channel; Backsloped downstream edge of pad, bermed upstream side, reseeded pad area, berms downstream in channel	Prevent upstream and downstream headcut caused by old pad; Reduce bare ground, increase cover; Reduce runoff, increase infiltration.
Upper Pecos-Black, Delaware	Salt Cedar Control - Chemical and mechanical removal of plants, prescribed fire to remove dead wood	Provide additional groundcover in place of Salt Cedar to reduce sedimentation; Increase proper function of riparian zone
Upper Pecos-Black, Rio Penasco, Delaware, Lower Pecos-Red Bluff	Brush Control – treated across CFO to reduce/eliminate mesquite, creosote, catclaw, tarbush	Reduce shrub species, increase grass species; Reduce bare ground, increase cover; Reduce runoff, increase infiltration.

Post brush treatment along Delaware River

After Restoration Efforts

Typical area along upper reaches of Delaware River

Las Cruces Field Office:

Watershed (s)	Project Type	Water Quality Impact Addressed
Jornada Draw	Creosotebush control	Reduce runoff, erosion, sedimentation
Mimbres	Creosotebush control, Mesquite control, Maintenance of erosion/flood control detention structures	Reduce runoff, erosion, sedimentation
Rio Grande El Paso-Las Cruces	Maintenance of erosion/flood control detention structure	Reduce runoff, erosion, sedimentation
Salt Basin	Creosotebush control, Pinon/Juniper thinning and prescribed fire	Reduce runoff, erosion, sedimentation
Tularosa Valley	Mesquite control, Creosotebush control, Salt cedar	Reduce runoff, erosion, sedimentation; Increase water table and flow
Upper Gila-Mangus	Creosotebush control	Reduce runoff, erosion, sedimentation

Roswell Field Office:

Watershed (s)	Project Type	Water Quality Impact Addressed
Arroyo del Macho	Mesquite chemical treatment	Reduce runoff, erosion, sedimentation; Improve water infiltration and retention in soil; Increase herbaceous plant growth & understory vegetation; Reduce sediment yield to Pecos & Rio Bonito Rivers
Rio Hondo	Mesquite chemical treatment; Creosote chemical treatment; Pinon / Juniper removal; Salt Cedar removal; Russian Olive removal	
Tularosa Valley	Mesquite chemical treatment	
	Mesquite chemical treatment; Salt Cedar removal	
Upper Pecos-Long Arroyo	Mesquite chemical treatment; Creosote Treatment; Salt Cedar removal	

Socorro Field Office (southern watersheds):

Watershed (s)	Project Type	Water Quality Impact Addressed
Elephant Butte Reservoir & Caballo	Kellogg Canyon Pinon/Juniper Thinning Project. Removal and thinning of 70 acres of pinon pine and one seeded juniper.	Reduce erosion potential; Increase herbaceous plant growth /densities, & water infiltration.
Rio Salado	Rio Salado Salt Cedar Project. Treatment of 245 acres of Salt Cedar	Improve native vegetation and diversity. Increase water quality and quantity.

Carlsbad Soil & Water Conservation District Projects:

Watershed (s)	Project Type	Water Quality Impact Addressed
Rio Penasco	Coniferous tree thinning and grass seeding	Increase ground/grass cover & precipitation infiltration; Decrease sediment and reduce erosion
Upper Pecos Black	Treated saltcedar removal for restoration	Watershed health improvement; Decrease sediment and reduce erosion; Increase grass cover for bank stabilization
	Saltcedar removal by cut/stump method	Increase water table & stream flow; Watershed health improvement; Decrease sediment and reduce erosion; Increase grass cover for bank stabilization
	Brush control to reduce / eliminate mesquite, catclaw, and creosote	Continuation of prior treatment to show increase in grass cover, shorter flow patterns, and less soil movement
	60 drilling pads and roads reclaimed; reseeding and soil stabilization matting used	Continuation of prior reclaimed areas to show reduction in soil erosion; Improve water infiltration

US Forest Service Projects:

Cibola National Forest: (southern watersheds)

Watershed (s)	Project Type	Water Quality Impact Addressed
Plains of San Agustin	Broadcast burn on 2815 acres that were previously thinned	Reduce fuels and the potential for heat damage to soils; Limit post-fire runoff, erosion and sedimentation
Elephant Butte Reservoir	Restore riparian habitat on Cedro Creek and Limestone Canyon by installing in-channel structures and planting riparian plants	Increase water table level, stream meandering, & stream length; Improve stream channel & bank stability; Enhance riparian habitat

Gila National Forest:

Watershed (s)	Project Type	Water Quality Impact Addressed
Caballo	trail maintenance on the South End Trail	Sediment/erosion control via soil stabilization
	Cuchillo-Negro Creek Poverty Creek prescribed fire; Granite Wildland Fire Use; Lake Wildland Fire Use	Improved herbaceous ground cover resulting in stabilized soils & reduced erosion
Carrizo Wash	thinning, piling, burning; Lake Pit tank; Gap I Ponderosa Pine Thinning; Gap II Pinyon-Juniper thinning, tank water lots, spring excosures, pipeline extension	Fuels reduction and prevention of sediment problems associated with wildfire; Increase in herbacous ground cover; Improve upland watershed condition by providing for livestock distribution; Enhancement of riparian vegetation and protection of spring and streambank
Elephant Butte Reservoir	Wahoo Wildland Fire Use	Improved herbaceous ground cover resulting in stabilized soils & reduced erosion
Mimbres	Little Walnut WUI thinning	Fuels reduction and increase of ground cover in pinyon/juniper woodlands
San Francisco, Carrizo Wash	Pile Burning	Fuels Reduction and prevention of sediment problems associated with wildfire; Increase in herbaceous ground cover
San Francisco	Hell Hole water lot Banta Spring pipeline (0.5 mile)	Improve upland watershed condition by providing for livestock distribution
	Install gully stabilization structures; Stock Tank Cleanout; Trails work: log removal, widening trails to accomodate packstock, and trail treadwork (reconstruct drainage crossings, install rolling dips and rock waterbars, tread improved/scraped/cleaned)	Streambank stabilization; Reduce runoff, erosion, sedimentation; Reduce amount of sediment entering stream system; Improve bank stability
	Thinning of mixed conifer to improve stand health	Improve herbaceous ground cover; Reduce hazardous fuels; Improve wildlife habitat
	Tennessee Allotment deferment to improve herbaceous groundcover; yearlong.	Reduce compaction, erosion, and sedimentation.

Watershed (s)	Project Type	Water Quality Impact Addressed
San Francisco cont....	Elk exclosure construction and reconstruction; Reconstruction of spring exclosure	Exclusion of wildlife and livestock to protect riparian area and aquatic habitat
	Spring exclosure; Saltcedar treatment along San Francisco River; Dam maintenance and cleaning of Wet Leggett Tank	Protection of spring area; Reduction of noxious plant from riparian area; Reduction of sediment movement downstream
	Tularosa tree shearing; Tularosa River exclosure and waterpoint	Improve herbaceous ground cover Protection of riparian area
	erosion control structures (319 project); Cienega Creek Willow Planting (319 project)	Reduce sediment delivery into Centerfire Creek and San Francisco River
San Francisco Upper Gila	Indian Creek Pasture deferment (on-going) for resource protection following Bear Fire.	Reduce negative impacts to highly sensitive soil resources following high intensity wildland fire.
Upper Gila	Installation of Solar Bees at Lake Roberts; Purple loosestrife removal at Lake Roberts	Increased dissolved oxygen, increased pH, improved water temperatures Reduction of noxious weeds
	Aspen Wildland Fire Use; Loco Wildland Fire Use; Railroad Wildland Fire Use; Saltcedar treatment along Gila River	Improved herbaceous ground cover resulting in stabilized soils and reduced erosion.
	Woodland Wildland Fire Use; Canyon Wildland Fire Use	Improved herbaceous ground cover resulting in stabilized soils & reduced erosion
	Mill Thinning	Fuels reduction and increase of ground cover in pinyon/juniper woodlands
Upper Gila-Mangas	Harris Prescribed Burn	Fuels reduction and prevention of sediment problems associated with wildfire; Increase in herbaceous ground cover
	Rockheader construction; Gully plug construction	Trap sediment and promote revegetation on eroded soils

State-wide Projects (not reported by watersheds)

Natural Resource Conservation Service

Comprehensive Nutrient Management Plans
Comprehensive Nutrient Management Plans were developed by the NRCS field offices in 7 counties. Funding is continuing to be available for manure management through the Farm Bill Environmental Quality Incentives Program for animal feeding operations. Numerous training sessions for producers on manure management technologies were held throughout the state.

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 160 participants have been trained since 2001. Nutrient management practices were applied to utilize resources efficiently and reduce nutrient runoff and leaching from cropland in 20 counties.

Conservation Buffers
Conservation buffers reduce sediment losses and runoff. Field borders, stream bank and shoreline protection, and windbreaks/shelterbelts were applied in New Mexico, chiefly in 7 counties.

Irrigation Water Management
Irrigation water management practices applied, which reduce runoff and leaching, included acres applied in 27 counties. Irrigation land leveling was applied on 8,292 acres.

Pest Management
Pest management systems were applied on cropland, pasture and rangeland to utilize resources efficiently and reduce pesticide runoff and leaching in 18 counties. Brush management practices were applied on 127827 acres.

Prescribed Grazing
Prescribed grazing practices were applied on rangeland in 29 counties. Fences were installed on 1,097,684 acres.

Residue Management
Conservation crop rotation (105844 acres), cover crop (802 acres), mulch till (502 acres), no till (5094 acres), seasonal residue management (103120 acres) were applied to cropland to reduce sediment losses and runoff and utilize resources efficiently, chiefly in 20 counties.

Waste Management
Waste storage facilities were installed in 2 counties. Waste treatment lagoons were installed in 1county.

Watershed Plans
Watershed plans were developed in 10 counties.

New Mexico Department of Transportation (NMDOT)

The NMDOT / New Mexico Environment Department Task Force was created to provide better communication between both departments regarding environmental concerns. Water Quality-related accomplishments for 2007 include:

NMDOT/NMED Task Force
"On-The Road" Task Force meetings were held in Districts 1 and 4 and focused principally on Section 404/401 issues, and showcased NMDOT environmentally friendly channel maintenance projects and composting innovative techniques for compliance with NPDES.

Joint 401/NPDES Position in NMED's Surface Water Quality Bureau (NMED/SWQB)
• Jointly funded by NMED/SWQB and NMDOT. The position was renewed for another 3-years this fall.
• Works with NMDOT CWA §404/401 issues primarily to comply with 401 Certification regulations.

NMDOT Recycling Program:
The NMDOT continues to develop innovative uses for tire bales, in particular, bank erosion, and composted mulch for slope stabilization and erosion control.

CWA Section 104(b)(3) Wetlands Grant awarded to SWQB for "Integrating Stream Restoration Principles And Transportation Maintenance" project:
In cooperation with NMDOT District One, this project will employ Rosgen hydrogeomorphic principals, will complete on-the-ground implementation of BMPs to protect and restore 30 acres of wetlands resources on the West Fork Gila River, and will provide on-the-ground training for NMDOT personnel in combining river restoration principals with road construction and maintenance projects.

NMDOT/NMED Task Force Plans for 2008 will include continuation of "On the Road" Task Force meetings and a NMDOT/NMED Departments- wide meeting in January 2008.

List of Abbreviations in This Report

BLM	Bureau of Land Management	NRCS	Natural Resource Conservation Service
BMP	Best Management Practice	ONRW	Outstanding National Resource Waters
CWA	Clean Water Act (Federal)	ORV	Off-Road Vehicle
EPA	US Environmental Protection Agency	SWQB	Surface Water Quality Bureau
GWQB	Ground Water Quality Bureau	US	United States
HUC	Hydrologic Unit Code	USFS	United States Forest Service
NM	New Mexico	WQCC	NM Water Quality Control Commission
NMED	New Mexico Environment Department		

New Mexico Environment Department
Surface Water Quality Bureau
Watershed Protection Section
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