



STATE OF NEW MEXICO NONPOINT SOURCE



MANAGEMENT PROGRAM



Riparian exclosures on Comanche Creek in Taos County

2001 ANNUAL REPORT

WATERSHED PROTECTION SECTION

Surface Water Quality Bureau
New Mexico Environment Department

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PETER MAGGIORE
SECRETARY

The Surface Water Quality Bureau (Bureau) is pleased to submit this report summarizing the accomplishments of New Mexico's Nonpoint Source (NPS) Management Program for 2001. New Mexico has, and continues to, aggressively tackle nonpoint sources of water quality impairment through the total maximum daily load program, and implementation through the Clean Water Act, Section 319 (h) grant administration. This report reflects the role of the Bureau in leading and coordinating the nonpoint source program, and highlights how this leadership has brought other state and federal agencies and local groups into the effort to protect water quality.

The New Mexico Nonpoint Source Management Program administered by the Bureau outlines a five-year Core Work Plan to address nonpoint source concerns within 21 Category I Watersheds from New Mexico's Unified Watershed Assessment (UWA). Beginning in 1999, each year, approximately four UWA Category I Watersheds are targeted for intensive outreach by SWQB teams. Watershed Protection Section technical staff representatives are included on these teams. The UWA Category I watersheds have been additionally prioritized based on New Mexico's Total Maximum Daily Load (TMDL) development schedule. Outreach activities are coordinated with the development of TMDLs for impaired stream reaches within each targeted watershed. Following TMDL development, the NPS Management Program utilizes a "request for proposals" approach, which specifically targets these watersheds for § 319(h) grants. Award preference is given to those projects that address appropriate causes of non-support and work to achieve the load reductions specified in the several TMDLs developed in the watershed.

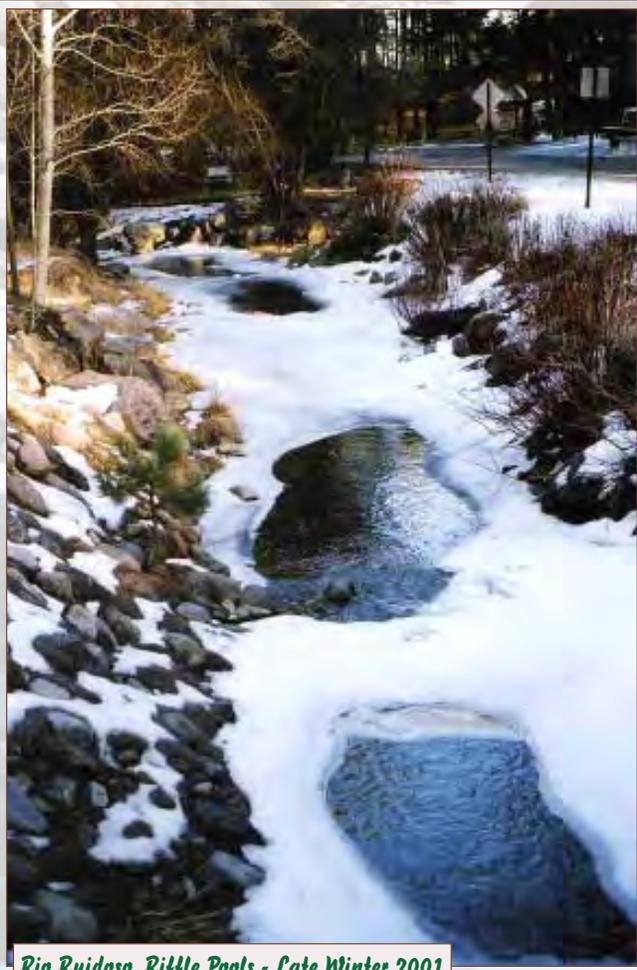
After five years, all presently identified Category I watersheds will have been targeted for intensive outreach, monitoring and §319 restoration efforts. Major staffing objectives to support the Core Work Plan include outreach, facilitation, administration and oversight. SWQB will also respond to other situations and opportunities that may arise within other watersheds within the state. The New Mexico NPS Management Program and Assessment Report was approved by EPA on January 6, 2000.

All of us in New Mexico who are cooperatively tackling the state's NPS issues appreciate the support of EPA in this effort and look forward to continuing success and cooperation in protecting our water quality.

Sincerely,

James H. Davis, Ph.D.
Bureau Chief

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Rio Ruidoso, Riffle Pools - Late Winter 2001

"The Objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

~ Federal Clean Water

This report was prepared in accordance with §319 of the Federal Water Pollution Control Act (Clean Water Act or CWA) and summarizes nonpoint source pollution control efforts and activities within the State of New Mexico for the year 2000. Section 319 of the amended CWA requires states to assess the nature and extent of water quality impairment resulting from nonpoint sources of pollution and develop management programs to control the sources identified.

New Mexico's initial Nonpoint Source (NPS) Assessment Report and Management Program documents were prepared and approved in accordance with the requirements of the CWA. The New Mexico NPS Assessment Report was initially adopted by the New Mexico Water Quality Control Commission (WQCC) on September 13, 1988, revised on April 11, 1989, and finally approved by the U.S. Environmental Protection Agency (EPA) on July 31, 1989. Since that time, waterbody tables that outline known impairments, resulting from NPS causes and sources, have been updated on a biannual basis as a part of the New Mexico Water Quality Report to Congress, *Water Quality and Water Pollution Control in New Mexico*, as prepared and submitted in accordance with §305(b) of the CWA. Following preparation and submittal of the assessment report, the State developed the NPS Management Program that was approved by the WQCC on September 12, 1989. EPA approval was granted on September 26, 1989. In 1999, New Mexico updated the 1994 NPS Management Program. The update was designed to provide future direction and goals for the State's program.

The 1994 NPS Management Program update includes the following elements as required by §319(b)(2) of the CWA:

- (A) **Best Management Practices (BMPs)** used to reduce pollutant loading by category and subcategory of pollutant source.
- (B) **Identification of programs** to achieve implementation of BMPs by category and subcategory.
- (C) **A schedule of milestones** for implementation of BMPs.
- (D) **Certification** by the Attorney General that the laws of the State of New Mexico provide adequate authority to implement the NPS Management Program.
- (E) **Sources of Federal funding** and other assistance and funding that will be available and utilized for implementation of the NPS Management Program.
- (F) **Identification of Federal programs** and Federal financial assistance that will be reviewed for consistency with the NPS Management Program.

Nonpoint sources are recognized as contributors to water pollution in New Mexico, as well as the nation. Principal nonpoint sources of surface water pollution in the State include erosion from rangelands, agricultural activities, construction, silviculture, resource extraction, land disposal, unsurfaced roads, and recreation. Hydromodification may affect attainment of designated uses by diverting water out of stream channels, by impounding waters, and through channelizing and dredge-and-fill activities. Principal known sources of NPS ground water pollution in rural and suburban areas include household septic tanks, cesspools, and agricultural activities.

The New Mexico NPS Management Program describes dynamic programs and progressive actions necessary to reduce pollutants from nonpoint sources entering surface water and ground water. As part of the management plan, a working group has been formed as the NPS Task Force/UWA Work Group. The Task Force has an expanded role in prioritization and coordination of NPS management through the Clean Water Action Plan/Unified Watershed Assessment (CWAP/UWA) process. Results of Surface Water Quality Bureau (SWQB) NPS monitoring projects, agency management activities, and new NPS concerns will be reported to and discussed with the NPS Task Force/UWA Work Group. When appropriate, results of these discussions will be referred to the WQCC for its review and action. When necessary to provide consistency and to improve the NPS program, the NPS Task Force/UWA Work Group will help SWQB develop and propose updates to the State's NPS Management Program.

NONPOINT SOURCE MANAGEMENT PROGRAM

In January, 2001 New Mexico's Nonpoint Source (NPS) Management Program was officially approved by USEPA Region 6. The New Mexico NPS Management Program describes dynamic programs and progressive actions necessary to reduce pollutants from nonpoint sources entering surface water and ground water. This program will help New Mexico attain surface water quality that will fully protect the designated uses described in the State's water quality standards and meet the goals of the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act (CWA)), and ensure adequate ground water quality for municipal, domestic, and agricultural uses.

The NPS Management Program outlines a five-year plan to address the concerns within the 21 Category I Watersheds. Beginning in 1999, each year, approximately four

UWA Category I Watersheds are being targeted for intensive outreach by Surface Water Quality Bureau (SWQB) teams, including Watershed Protection Section (WPS) technical staff representatives. These watersheds have been further prioritized based on Total Maximum Daily Load (TMDL) development schedules. Outreach activities are coordinated with the advent of TMDLs for impaired stream reaches within each targeted watershed. Following TMDL initialization, the § 319(h) *Requests*

For Proposals process specifically target these watersheds and award preference is given to those projects that address appropriate causes of non-support.

After five years, all presently identified Category I watersheds will have been targeted for intensive outreach, monitoring and § 319(h) restoration efforts. Major objectives to support the Core Work Plan include outreach, facilitation, administration and oversight, and enforcement. SWQB will also respond to other situations and opportunities that may arise within other watersheds of the State.

*"The River is the carpenter
of its own ediface."*

~ Luna Leopold



Mangus Creek Watershed, looking from the Littlerock Mine

*"In Wilderness is
the preservation of the world."
~ Aldo Leopold*

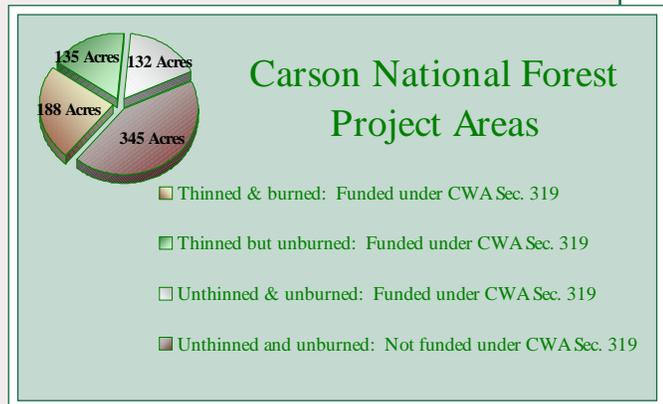
THINNING AND CONTROLLED BURNS

The Valle Grande Grass Bank Water Quality Improvement Projects are a composite of projects within the Valle Grande Grass Bank Program:

The Conservation Fund thinned piñon-juniper on 130 acres of grassland in an experiment to compare the costs and effectiveness of manual thinning by crews with chain saws, thinning with hydraulic clippers mounted to a small tractor, and thinning with a hydraulic circular saw mounted to a small tractor. In this type of terrain, the circular saw (a relatively novel tool for this application) was the least expensive to operate and disturbed the surface less than the hydraulic clippers. Crews with chainsaws cost the most to support, but the crews on foot disturb the ground the least.

The Santa Fe National Forest completed the 1,200-acre Madrid Burn. The understory response to the portion of this burn conducted in previously thinned ponderosa pine forest was spectacular, with new ground cover developing to hold the soil in place and reduce runoff during storm events.

The Río Embudo Water Quality Improvement Project: The Carson National Forest (CNF) thinned 323 acres (of 455 acres planned) of ponderosa pine and mixed conifer forest. Approximately 100 of these acres were burned in May, bringing the total area burned to 188 acres during this reporting period. The remaining thinning and burning, some of which was to be supported with § 319 funding, will be conducted using other funds. This information is summarized in the figure to the right.



The Upper Santa Fe Watershed Restoration

Project became active when the Santa Fe Watershed Association (SFWA) published a watershed restoration action strategy (WRAS) for the Santa Fe River watershed (from Lake Peak to the Rio Grande) after intense public comment. The WRAS can be found on the NMED website at www.nmenv.state.nm.us/swqb/Santa_Fe_WRAS-2002.pdf.

The Santa Fe National Forest (SFNF) issued a record of decision regarding the project in October in accordance with the National Environmental Policy Act (NEPA). SFNF selected an alternative to implement the project that is compatible with the workplan to the § 319 grant, which was subsequently appealed by environmental activists on the grounds that sufficient surveys of wildlife have not been completed. SFNF and the [conservation organization] are currently negotiating, and may settle the matter out-of-court, based on assurances that the wildlife surveys will be completed prior to project implementation. Such surveys were included in the monitoring plan developed by SFWA under this project, and that plan was incorporated into the environmental impact statement (EIS) on which the Forest based its decision. While these developments may sound tedious and legalistic, the NEPA process has provided an effective mechanism for public dialogue, and many interested members of the public are now better informed about forest restoration and the vulnerability of the municipal water supply. The Santa Fe National Forest received over 1,100 comments on the draft EIS.

The City of Santa Fe, which is not bound by NEPA on its lands, has employed a contractor and begun thinning on about 50 acres of city-owned land in the watershed. The work is being conducted using a more restrictive prescription than that selected under the NEPA process. A portion of the expense of this thinning will be applied to match § 319 funding awarded to SFNF.

GRAZING

The Naschitti NPS Range Project involves a rotational grazing system consisting of five Range Management Units (RMU). Each RMU is 5,000 acres, which is divided into four fenced sections for rotational grazing. The land is harsh but with some range management techniques vegetation can be managed. With proper management of vegetation cover more soils can be stabilized and water quality improved from grazing activities. The U.S. National Resources Conservation Service (NRCS) and the Navajo Nation Resource Conservation & Development Council will use the project as an educational tool so that tribal members can follow proper range management techniques to improve their range. Since the land is so harsh, even if range management techniques are properly implemented the project results may take years before positive results can be seen. This project is the first of its kind within the Navajo Reservation and will undoubtedly be used as an example of the cooperative measures that tribal members can have in future reservation projects.

The Rito Peñas Negras Project influenced 10,880 acres in Rio Arriba and Sandoval Counties. The Cuba Ranger District completed the fencing requirement in the workplan. Unfortunately this activity had been delayed the past two years because of Forest Service closure in response to potential fire hazard present during recent drought years.

The Valle Grande Grass Bank Water Quality Improvement Projects are a composite of projects within the Valle Grande Grass Bank Program:

The Valle Grande Grass Bank hosted cattle from four allotments of the Santa Fe and Carson National Forests. The participating allotments included the Santa Barbara allotment (with cows from the area of the Río Embudo Water Quality Improvement Project), the Caja del Río Allotment (in coordination with the Sagebrush Flats Burn, and the Caja del Río Project), the Rosilla Allotment (permitting more rapid recovery of the area affected by the stand-replacing Viveash Fire), and the Capulin Allotment.

As a subcontractor under the project, the Quivira Coalition published two newsletters, conducted ten outdoor workshops, and organized *The New Ranch Conference* with over 150 attendees, all to get the word out about sustainable ranching techniques.



Rito Peñas
Negras
Restoration

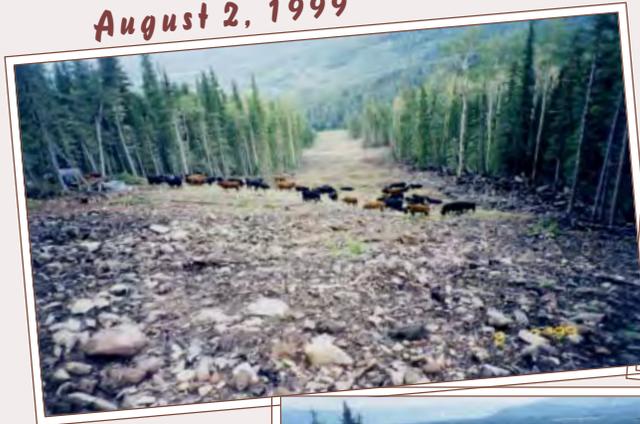
STORMWATER MANAGEMENT

A **Stormwater Management Pilot Project** for Nonpoint Source Pollution reduction was begun in Santa Fe when a stormwater management ordinance and related material were submitted to NMED in June of 2001. The ordinance was recommended for approval by two committees, and currently awaits consideration by the Santa Fe City Council. To demonstrate some of the features of the proposed ordinance, over a thousand feet of swales were constructed on the campus of E.J. Martinez Elementary School and on Calle Lorca Park. Several grade control structures were placed in the Arroyo de los Pinos adjacent to the areas. The students of E.J. Martinez Elementary, the Youth Conservation Corps, and the City's LOCALS program provided labor. Five homeowners were enlisted to work with a city contractor to install small structures, such as French drains, to prevent runoff from leaving their property and to utilize the runoff to water their landscaping. Together, these efforts will reduce peak flows and sediment delivery from the Arroyo de los Pinos to the Santa Fe River, partially implementing the Santa Fe River TMDL for stream bottom deposits.

EROSION CONTROL

An Erosion Control Pilot Project at the Angel Fire Ski Area: All on-the-ground efforts and most of the monitoring has been completed for this project. Additional monitoring will take place next year to further document improvements. Work has been performed on five ski runs totaling more than two miles in length. Revegetation of these runs were critical in preventing further loss of stream stability. A primary focus of this project has been the ski run called “Hully-Gully” which has been severely eroding for over 25 years. The name derives from the upper slopes draining into this run creating a gully at the lower part of Hully-Gully. It had the appearance of an arroyo, mostly rock and gravel with some sand. It is just over half a mile long, averages 200 feet wide, covers approximately 12.4 acres, and the average grade is 29%. The results of the project efforts have been impressive. A dense and mostly uniform grass coverage has been achieved over the previously bare areas. In addition to successful grass germination, the hoof action of the cattle is effective in smoothing out much of the ‘gullying’ that had begun. Hay and manure

August 2, 1999



August 9, 1999

that was worked into the soil is still visible in many areas, showing that it is helping to hold soil in place. The pictures represent the change that occurred over the life of this project.



August 9, 2000

The Señorito Watershed Project, organized through the Quivira Coalition and their BMP project contractor Terry Wheeler, completed the second (and final) field phase of the concentrated animal impact (“poop-and-stomp”) mine waste reclamation work during the Fall of 2000. A total of twelve acres was worked on over two years time. The cost of this project is high, relative to traditional soil raking, seeding and mulching techniques, but may demonstrate a technique that a landowner with animals, but little of the other traditional tools and equipment, could employ to improve his own lands.

Site inspection by NMED during the summer of 2001 reveals that the animal impacted areas are definitely in an improved state relative to the pre-treatment condition. We can now observe an abundance of new grassy and low herbaceous ground cover, vastly improved organic component to the soils, and a virtual absence of the barren crusty land surface that previously characterized the project area.

STREAMBANK STABILIZATION

The Rio Brazos Watershed Group met several times this year to plan and update project goals. To date, five sites have been chosen on the Rio Brazos within the project boundaries. Work to be accomplished at these sites include streambank stabilization work and riparian planting. The group has contacted several private and public consultants to provide engineering and hydrologic data to satisfy § 404 permit requirements for the work to be accomplished. The group has approached the Upper Chama Soil and Water Conservation District (SWCD) to develop a Joint Project Agreement (JPA) to administer the project. To date no decisions have been made on selecting the consultant or actions taken to finalize a JPA with the SWCD.

STREAM RESTORATION

The Spur Ranch Project involves Centerfire Creek and its watershed through Spur Ranch on its way to the San Francisco River. Before the project began, the creek was lying in the bottom of a 16-foot gully cutting through an historic meadow. The area was historically overgrazed with large timber harvests occurring throughout the watershed.

This project focuses on the head cutting from the San Francisco River, which prevents the Spur Ranch portion of Centerfire Creek from attaining its historical dimensions and access to its floodplain. The project was funded in two phases. The first phase was a 6½-foot stepped soil cement structure spanning the bottom. Upstream of the structure is a vertical inlet pipe, topped with a trash rack. The discharge side of the structure is a six-foot deep plunge pool. The second phase is a series of four more two-foot steps, to bring the structure to within two feet of the top of the escarpment.

The specific objectives accomplished by the Spur Ranch project are the improved water quality, restoration to approximate historic levels, revegetation of a typically highly erosive area, and improved watershed functioning condition.

The Rio Ruidoso Watershed Restoration Project, managed by the Rio Ruidoso Association, has a completed hydrology study and engineering design for best management practices (BMPs) at Ski Apache to mitigate sediment discharge from the parking lot, slopes, and sediment detention basins. The project has been extended an additional fourteen months to implement the BMPs. The Grindstone Dam initiatives have proven to be a great success. The Grindstone Dam leakage is now pumped back into the lake, the upstream gauging station is online and recording, and the minimum flow agreement with the village came into effect in the year 2000.

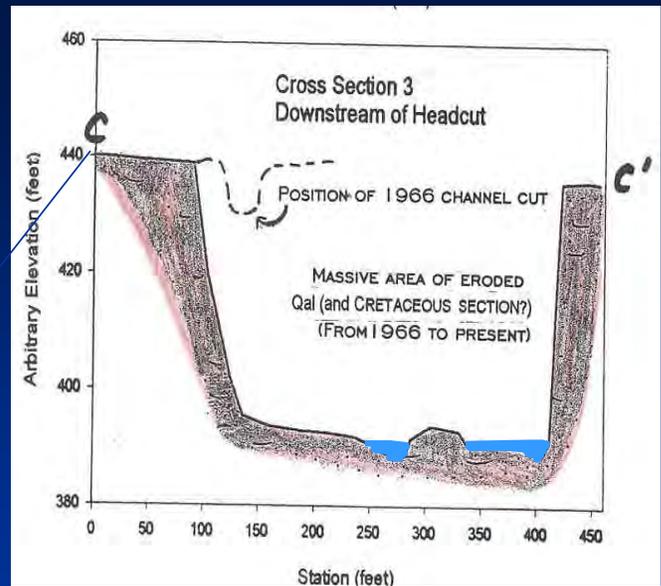
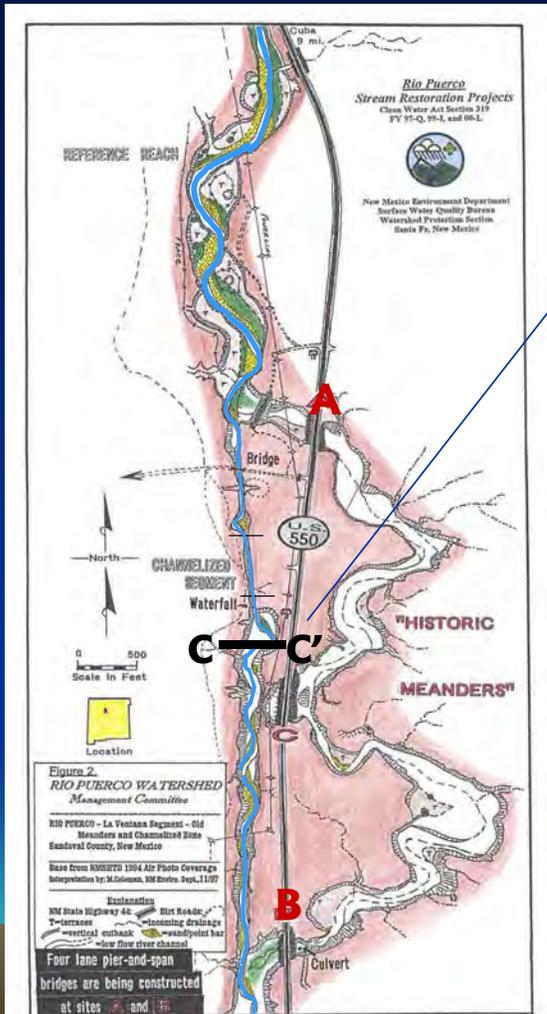
The Galisteo Watershed Restoration Project, developed by the Earth Works Institute (EWI) implemented stream restoration and erosion control projects at two of three planned sites during the reporting period. In-channel structures to protect an adjacent road and induce stream meander development were installed in upper Galisteo Creek during July and August. The positive effects of sediment retention and stream channel pattern development were observed during summer 2001 monsoon runoff. The induced meandering techniques of Bill Zeedyk that were employed in the channel are able to be “tweaked” so that the size or shape can be adjusted to optimum effect as soon as stream flow begins demonstrating some effectiveness on bank modification and buildup of in-channel bars.

The Rio Puerco Engineering, Environmental and Geomorphology Evaluation Project, in cooperation with the Rio Puerco Management Committee (RPMC), involves stream restoration above La Ventana, in Sandoval County. The project is made possible due to new bridges installed by the New Mexico State Highway and Transportation Department (NMSHTD) along US Highway 550. A Joint Powers Agreement (JPA) was developed between SWQB and US Department of the Interior (DOI) Bureau of Reclamation (BOR) for the engineering aspect of this project. BOR will develop the designs while the Bureau of Land Management (BLM), NMSHTD and SWQB will review and implement the river restoration efforts.

The geomorphological fieldwork has characterized both the current flowing segment of the Rio Puerco, as well as the existing dimension, pattern and topographic profile of the targeted historic meandering channel. The main channel was abandoned in the mid-1960s when the river was channelized away from this route. Surveys and field work generated by these activities (see figure next page) have been provided to the BOR to supplement their project database.

In early September 2001, RPMC members, including the SWQB Project Officer for the restoration effort, traveled to Washington, D.C. to make presentations to the BLM, DOI, and members of the New Mexico Congressional Delegation on RPMC watershed restoration efforts. The trip resulted in the acquisition of \$300,000 of DOI funding for RPMC projects in 2002.

Erosion in the channelized segment of the Rio Puerco is threatening the road base of the newly constructed US Highway 550, south of Cuba, Sandoval County. This image was taken in the Summer, 2001 at the location designated by "C" on the figures below. View is toward the Southeast.



Net result of the accelerated erosion:
Channel dimensions increased from 20' X 20' to >50' deep and >300' wide.

Sediment removed = 14.1million cubic feet (averaging 403,000 ft³/yr * over 35 years)**

***** approximately 20% of annual suspended load introduced to the Rio Grande**

WETLANDS

The Picacho Bosque Constructed Wetland Restoration Project, as originally funded, was a constructed wetland for habitat and irrigation flow water treatment which has now blossomed into a multi-agency/multi-regional comprehensive work-in-progress. With the City of Las Cruces and its resources added, a propagating partnership has been forged. Additional partnerships have been formed with the Fish and Wildlife Sciences of New Mexico State University for data collection, US Fish and Wildlife Service and Elephant Butte Irrigation District for multi-use permits and volunteers for labor. The Project location, Picacho Bosque, is in the lower Rio Grande watershed, along the stretch between Elephant Butte Reservoir and the Texas border. This region has been managed solely for flood control and as an irrigation delivery system for over 80 years, resulting in a canalized river with almost vertical banks which contains significant water only during the irrigation season. The damage caused by those longterm morphologic and hydrologic changes along with mowing between the levees and the elimination of springtime flood pulses have had a devastating effect on the riparian habitat that lines the river. Almost the entire native riparian habitat has been lost. In the patches that do exist, the changes have altered the river's hydrology, the plant and animal species composition, and the exotic plant species through competitive exclusion, especially salt cedar. The project has been selected as a demonstration wetland for the City's Sustainable Development, Rio Grande Ecological Corridor Project and the Mesilla Valley Bosque Park Projects. The partnership ensures that the wetlands are built and maintained in perpetuity. Wetland restoration has been proven to provide wildlife habitat. The subsequent saturated riparian and wetland areas are important because they intercept nonpoint source pollutants due to their location at the water/land interface.

OUTREACH

The Children's Water Festival 2000 was conducted on November 2nd and 3rd and was a great success, bringing a day of water education to over 900 Albuquerque area fourth-graders at the Albuquerque Convention Center, in the heart of New Mexico's largest city. On May 15th through the 17th of 2001, Susan Gorman, the contractor that coordinated the project, presented a paper in Chicago at the 2nd National Conference on Nonpoint Source Pollution Information and Education Programs describing the process for planning and implementing a water festival.

The Red River Watershed Group continues to enhance local involvement for addressing water quality issues in the Red River Watershed of northern New Mexico. The group meets regularly to develop a watershed restoration action strategy (WRAS) for the basin. They have recently entered into a contract with a local resident to provide educational outreach in the watershed. Presentations were made this past year to the Red River Chamber of Commerce and the Questa Strategic Planning Group, along with several interviews with individual residents of the watershed. Two newsletters have been distributed that introduce the group's mission and goals while explaining local water quality issues. A tour of the upper watershed was held this year to demonstrate water quality issues in that section of the watershed.

The Rio Ruidoso Association continues to publish a monthly newsletter, *Notes from the Noisy Water*, and has recently completed the production of a video-tape *Saving the Noisy Water: The Ruidoso River Association Story*. They have increased their membership by 250 for a total of over 950 members. Progress towards Rio Ruidoso watershed restoration continues as the Association helped organize a new broader-based watershed group, the "Upper Hondo Watershed Coalition." That group is developing a WRAS for the Upper Rio Hondo watershed of which the Rio Ruidoso is an integral part. This successful initiative has also spawned several other watershed groups in the Hondo Valley.

"It is indisputable that a pollutant is a pollutant no matter how useful it may earlier have been."

~ Honorable Charles L. Breant

Since 1998 forty-seven Total Maximum Daily Loads (TMDLs) have been developed in New Mexico. The majority of the TMDL documents were written for nonpoint source pollution sources. Implementation of current and future CWA § 319 projects in watersheds with TMDL-listed waters will be pivotal in achieving the goals of the TMDLs. This includes the following reaches finalized this year with their identified impact parameters:

Santa Fe River from Cochiti Pueblo to the Santa Fe WWTP URG1-10300 (Rio Grande 2110). 12.7 miles for dissolved oxygen and pH. Submitted December 2000, received USEPA approval January 2001.

Cieneguilla Creek from the inflow to Eagle Nest Lake to the headwaters CR2-50000 (Canadian River Basin 2306). 13.6 miles for metals (chronic aluminum). Submitted December 2000, received USEPA approval February 2001.

Rayado Creek from the mouth on the Cimarron River to Milami Lake diversion (CR2-10100). 16.5 miles for stream bottom deposits. Submitted December 2000, received USEPA approval February 2001.

Cimarron River from the mouth on the Canadian River to Turkey Creek (CR2-10000). 35.5 miles for metals (chronic aluminum). Submitted December 2000, received USEPA approval February 2001.

Middle Ponil Creek from the confluence with South Ponil Creek to the headwaters (Canadian River, 2306). 20.9 miles for turbidity and temperature. Submitted July 11, 2001. Received USEPA approval September 2001.

Ponil Creek from the mouth on the Cimarron River to the confluence of North Ponil and South Ponil Creeks (Canadian River, 2306). 15.8 miles for metals (chronic aluminum), temperature and turbidity. Submitted July 11, 2001. Received USEPA approval September 2001.

New Mexico TMDL Schedule

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Lower Pecos River										
Lower Rio Grande										
Domestic Water Supply										
Santa Fe River										
Middle Rio Grande										
Gila Watershed										
San Francisco River										
San Juan River										
Rio Puerco										

"Boundaries don't protect rivers, people do."

*~ Brad Arrowsmith, landowner
along the Niobrara National
Scenic River, Nebraska*

The SWQB conducted a survey of watershed groups working in New Mexico. We have ongoing NPS projects with a number of these organizations and plan to develop future projects with others.

Acequia Madre de San Antonio Community Ditch Association: Maintains a working ancient acequia (organized prior to 1851). Protects riparian area and the contributing watershed area. Opposes a proposed subdivision that would impact riparian area and watershed. Community activism by increasing awareness of resources.

Bosque Hydrology Group: Educates and informs public of degraded condition of watersheds due to invasion of water hungry plants that cause erosion and aquifer depletion. They have been rehabilitating the watershed on the Carrizo Valley Ranch, adjoining ranches and National Forest area for 30 years.

Cedar Hill Clean Water Coalition: Collects and disseminates information about impacts from Animas-La Plata Project, land farms, oil/gas, and other industry.

Comanche Creek Watershed Partnership: Cooperates and collaborates on restoring and securing native Rio Grande Cutthroat Trout populations and their associated fish and benthic assemblages within the Comanche Creek watershed.

Committee to Save the Rio Hondo: Monitors and watchdogs the US Forest Service. Some projects include litigation against Forest Service and Taos Ski Valley for cumulative effects of summer lifts.

Cordova Creek Watershed Group: Restores Cordova Creek to a high quality coldwater fishery, and preserves and protects the Creek from further impairment through educational efforts and water protection actions by all stakeholders in the watershed.

Culebra Coalition: Preserves, protects, and networks to save remaining watersheds. Has worked with the Taylor Ranch, Sangre de Cristo Land Grant for 40 years.

Earth Works Institute: Restores and sustains the Galisteo Watershed (and its forests, grasslands, soils, riparian areas, fisheries, fauna and flora), serving as a model for similar watershed restoration efforts in the Southwest.

Esperanza Grazing Association: Implements a watershed plan to improve water quality for the Rio Cebolla and Rio Nutrias watersheds and informs and educates through outreach to schools, youth organizations, landowners and citizens.

Forest Guardians: Protects and restores the native biological diversity and watersheds of the American southwest and northern Mexico. They strive to educate and enlist citizens to support protection of the forests, rivers, deserts, and grasslands of this arid region, advocate principles of conservation biology via plans to restore degraded ecosystems and watersheds, enforce and strengthen environmental laws, and assist communities in protecting their land.

<http://www.fguardians.org>



Intermountain Conservation Trust: Manages conservation trust lands, provides environmental community education and promotes land stewardship through volunteer participation. This group also is responsible for managing a 672 acre conservation easement along San Pedro Creek.

The Nature Conservancy of New Mexico: Conducts watershed protection in the Gila and Mimbres River Watersheds.

<http://nature.org/wherewework/northamerica/states/newmexico/>



New Mexico Riparian Council: Promotes continual survival, maintenance, and enhancement of riparian ecosystems in New Mexico for the benefit of present and future generations. <http://www.ripariancouncil.org>



New Mexico Water Dialogue: Preserves and protects water resources for the future through community-based, open, inclusive water planning.

Open Space Alliance: Supports the Open Space Division in its goals and mission. Currently working on concrete/asphalt removal in the State Park and on March for Parks.

Pajarito Plateau Watershed Partnership: Protects, improves, and/or restores the quality of water in the Pajarito Plateau Watershed.

Quivira Coalition: Teaches ranchers, environmentalists, public land managers, and other members of the public that ecologically healthy rangeland and economically robust ranches can be compatible.

<http://www.quiviracoalition.org>



Rio Grande Restoration: Fosters the return of the Rio Grande to health by supplying an improved flow regime of high quality water.

<http://www.seedballs.com/riogpa2.html>

The Rio Puerco Management Committee: Collaborative watershed restoration group with a focus on erosion and sediment reduction, vegetation and riparian recovery, development of best management practices, community partnerships, and environmental education. Established in November, 1996 under Public Law 104-333.

Ruidoso River Association: Preserves and protects a healthy and free-flowing Rio Ruidoso. The group is working to improve both the quality and quantity of water in the Rio Ruidoso and restore a high quality cold water fishery designation.

<http://ruidosoriver.com/>



San Juan Water Users Association: Informs members of the Association of the water issues affecting them and their water rights, and lobbies on their behalf.

Santa Fe Botanical Garden, Leonora Curtin Natural History Area Committee: Celebrates, cultivates, and conserves the rich botanical heritage and biodiversity of our region through education and service to our community.

Santa Fe Drainage Task Force: Develops a draft stormwater management ordinance for consideration by the City Council, performs public outreach, involvement, and education, and implements projects concerned with physical improvements to the Arroyo de los Pinos to retain sediment, reduce stormwater erosion, and demonstrate the effectiveness of the ordinance.

Santa Fe Watershed Association: Collects and disseminates information about issues pertaining to the Santa Fe Watershed.

Southwest Environmental Center: Restores and protects the Southwest's natural heritage. For the Rio Grande, the Center focuses on advocacy, public education, restoration planning, and hands-on projects, such as tree plantings.

Pecos Watershed Association: Combines available technical, financial and educational resources, whatever their source, and focuses or coordinates them so that they meet the needs of the local land user for conservation of soil, water and related resources.

Tularosa Basin Water Resources Committee: Conducts watershed restoration activities related to water quality and quantity, and deals with forest health issues.

Upper Hondo Watershed Coalition: Improves water quality in the Rio Hondo Watershed in order to remove it from its listing as a UWA/Category I watershed and to safeguard it under those conditions for future generations.

Upper Gila Watershed Alliance: Conducts Gila River Watershed activities.

<http://www.ugwa.org>





The New Mexico State Highway & Transportation Department (NMSHTD) and NMED first formed a joint task force in response to a 1994 Memorandum of Understanding (MOU) between the two state agencies. The NMED/NMSHTD Task Force was created to provide better communication between the Departments regarding environmental concerns. Since the last NPS Annual

Report, the Task Force met October 19 and December 5, 2000 and February 21 and August 7, 2001.

A **CWA § 401 Certification** & NMSHTD District Environmental Oversight Contract was funded by NMSHTD to oversee the construction of highway projects with special environmental commitments. The oversight contract did not include oversight of all projects that were certified under CWA § 401 or had requirements under NPDES (CWA § 402). To fill this gap, a § 401 representative from SWQB met with NMSHTD Environmental Section personnel to review § 401 certification conditions and to guarantee compliance on any project granted CWA § 401 certification. In addition, NMED and the environmental oversight consultants will meet to review how compliance with environmental regulations is accomplished.

A **Joint NMSHTD/SWQB staff position** is being created to further guarantee compliance with CWA § 401 certifications and other surface water issues exclusively involving the NMSHTD. SWQB will house and supervise the employee, however, NMSHTD and NMED will equally share the salary and expenses. Duties of the joint position will focus primarily on regulatory functions of surface water quality, including § 401 certifications, reviewing storm water inspections and plans, and ensuring compliance with NPDES permits (including Notices of Termination). Other duties include attending NMSHTD meetings, commenting on environmental assessments and environmental impact statements, coordinating with NMSHTD field offices, assisting in mitigation efforts where appropriate, providing educational presentations on applicable water regulations, and participating in other highway projects that may affect surface water quality. The joint position will be filled in 2002.

Participation of NMSHTD in Watershed Groups has been enhanced by designating a representative from their Environmental Section to be available for participation in meetings and projects throughout New Mexico. Presently, NMSHTD is participating in the development of the Watershed Restoration Action Strategy for Cordova Creek (Upper Rio Grande Category I watershed).

Amendments to the Memorandum Of Understanding between NMSHTD and NMED has been revised by the Core Group Members of the Task Force. The revised Recitals and Responsibilities portion of the NMED/NMSHTD MOU will be adopted in 2002.

Illegal Asphalt Dumping Issues continued to arise during this reporting period. NMED recently received a spill report resulting from a discharge of an oil/diesel fuel mixture from using diesel fuel as a solvent in cleaning asphalt spray trucks, affecting both surface and ground water. NMED and NMSHTD are putting together best management practices (BMP) guidance and an example discharge plan. Some BMPs involve using agents such as waterborne products and naturally-occurring plant resins rather than petroleum-based products for sealing subgrades.

A **Salt Pile BMP Guidance** document for containment of salt piles at Highway District Patrol Yards was prepared by NMED's Ground Water Quality Bureau in cooperation with Highway Department staff. The Highway department will distribute the document to all patrol yards.



The **State Forestry Division** of the Energy, Minerals and Natural Resources Department promotes the ongoing best management practices (BMP) clauses in resource management plans and timber sale contracts by providing technical forest resource management assistance to private landowners.

Silviculture Milestones for the year 2001 for the Division included assisting in the development of over 102 forest management plans, including new and revised forest stewardship plans, practice plans, and forest management plans other than stewardship, for a total of 131,253 acres. Included in these numbers are ten stewardship plans covering 5,551 acres in Category I watersheds.

Following one of the worst fire seasons in the last fifty years, eight salvage sales were conducted on private lands. The *Inmate Work Camp Program* was involved with rehabilitation on lands damaged by several fires. Reseeding was done in conjunction with contour tree felling and hand-installation of wattles to help stabilize and reduce erosion.

Forest improvement and protection included 14,680 acres of natural regeneration, 16,400 acres in wood fiber production, 13,200 acres in wildlife enhancement, 10,807 acres treated within Category I watersheds, and slash treatment on 19,500 acres.

The harvesting of 34,670 million board-feet of woody products from 17,335 acres directly assisted the economy of several communities. At the completion of these sales, 184 miles of roads and access trails were water-barred and 229 acres of landings, skid trails and roads were re-seeded.

145 communities were assisted with projects that included urban interface and hazard mitigation, Arbor Day tree planting and related natural resource issues. 4,568 volunteer person-days were dedicated to these projects. An additional 3,208 person-days were spent attending workshops, seminars and field trainings.

147,000 seedlings were sold or given away by the State Forestry Division for planting by the citizens of New Mexico.

New commercial forest harvesting requirements have been adopted and go into effect on January 1, 2002. The new regulations strengthen administrative and enforcement aspects of harvest permitting and provide more guidance for BMPs in water quality protection. The new regulations may be found at the State Forestry Division web site:

<http://www.emnrd.state.nm.us/forestry/>



Smoke and fire sweep across the community of Los Alamos, May 2000



Tree thinning in the Upper Santa Fe River watershed



The United States Forest Service's (USFS) Region 3, located in New Mexico has been active with numerous activities to improve and protect watershed conditions, riparian health, and water quality. The National Forests continue to focus planning and resource assessment and improvements on a watershed basis.

This year did not include the kinds of catastrophic fires that New Mexico experienced last year. However, this year many of the USFS activities and fundings were focused on the continued rehabilitation of fire-damaged areas. In addition, a primary focus of the National Forests continues to be prescribed burning and thinning. These activities not only reduce hazardous fuels which are a serious wildfire threat, but also improve watershed health.

This year's watershed, riparian, and water quality protection improvements include:

- 1.) Development of numerous grade stabilization/sediment reduction structures that have been placed in ephemeral drainages throughout the state for enhanced drainage stability and erosion control;
- 2.) Implementation of riparian exclosures along several river reaches;
- 3.) Development of the Rowe Mesa Grassbank which allows for the removal of cattle from several degraded allotments in the northern half of the state. These degraded allotments are being treated to improve watershed and riparian conditions;
- 4.) Closure of roads, re-alignment of roads out of wet meadows and riparian areas, and engineering improvements of drainage on existing roads to reduce erosion. Roads have been determined to be a major source of erosion and general resource damage on USFS lands. As a result, the USFS is developing rules to minimize new road development and improve the design of existing roads;
- 5.) Improvement of numerous existing recreational facilities and closure of areas impacted by dispersed recreation; and
- 6.) Riparian plantings.





BRUSH MANAGEMENT

The Albuquerque Field Office controlled erosion by treating 3,740 acres on Canon Jarido and 1,740 acres on Canada Lucero with Spike chemical treatment. This reduced sagebrush and reestablished native grasses.

The Farmington Field Office selectively thinned 11,000 acres of sagebrush using Spike chemical treatment to enhance herbaceous vegetative cover and reduce soil erosion and sedimentation in the Largo Canyon Watershed and Navajo Reservoir.

The Las Cruces Field Office reduced creosote bush using Spike Chemical treatment on 4,060 acres in the El Paso/Las Cruces Watershed, on three plots totaling 7,091 acres in the Caballo Watershed, on 3,257 acres in the Mimbres Watershed and on 3,522 acres in the Tularosa Valley Watershed.

RIPARIAN VEGETATION ENHANCEMENT

The Carlsbad Field Office removed salt cedar from seven acres of riparian zones in the Upper Pecos Watershed, five acres along the Delaware River and five acres in the Landreth-Monument Draws. Salt cedar transpires large quantities of water. By removing the salt cedar, they increased water quantity allowing for native vegetation to return, stabilizing banks, and reducing sediment into river.

The Farmington Field Office constructed nine sediment retention fences in Largo Canyon Wash to trap sediment and create a suitable seed bed for the natural establishment of willows, cottonwood, and other riparian plant species.

EROSION CONTROL

The Albuquerque Field Office constructed fourteen earthen dams in arroyos to reduce gully erosion within the Stallion Watershed.

The Farmington Field Office constructed eight new earthen retention dams to control active erosion and supply water for wildlife and livestock.

The Socorro Field Office installed three earthen dams with the USFS Quemado Ranger District in the Carrizo Watershed and fourteen earthen dams within the Stallion Watershed. The dams were installed to control gully erosion and reduce sediment.

THINNING AND FUELS REDUCTION

The Farmington Field Office thinned 905 acres, reduced fuels on 200 acres and made greenwood out of 120 acres near the San Juan and Animas Rivers.

The Socorro Field Office thinned 60 acres of pinon and juniper trees in the Plains of San Agustin Watershed, 200 acres in the Rio Puerco Watershed and additional acres in the Upper Gila Watershed to prepare for future control burning.

CONTROLLED BURNS

The Socorro Field Office reduced piñon-juniper stands with a controlled burn in the Upper Gila Watershed. In addition, the Socorro Office treated 800 acres in the Coyote Burn and additional acres in the Green Tank Burn in the Plains of San Agustin Watershed.

STORMWATER CONTROL

The Farmington Field Office developed two sand-and-gravel application Storm Water Discharge Plans that will be used for the U.S. 550 road construction project from Aztec to Cedar Hill, New Mexico. Compliance review on two existing sand-and-gravel operations was conducted and corrective actions were taken where needed.

TRAIL/ROAD REHABILITATION

The Carlsbad Field Office provided signs, hay, needed equipment and labor to close and fill ruts of motorcycle roads. On the Hackberry Trail, 1.62 acres were treated with help from the Pecos Valley Rough Riders to reduce sediment yield from the trail. In the Chosa Draw, approximately 2,000 feet of road was relocated and crowned to avoid rutting and runoff into a sinkhole with a small cave entrance that acts a recharge for Chosa Spring.

GRAZING

Approximately 1.5 miles of riparian fencing was repaired on Wheeler and South Bloomfield river tracks along the San Juan River. Repair of this fencing will aid in the prevention of trespass livestock grazing and unauthorized use.

The Farmington Field Office re-authorized 29 grazing allotment permits on BLM managed lands for a 10 year period. A Fundamentals of Rangeland Health Assessments was conducted for each allotment. As part of the assessments, causal factors are identified and corrective actions are prescribed if the allotment is not meeting the Fundamentals of Rangeland Health.

PIT/SOIL REMEDIATION

The Farmington Field Office received approximately 500 individual pit closure and/or soil remediation submittals from various oil and gas operators throughout the San Juan Basin. These hydrocarbon-contaminated pits/soils have been remediated to meet BLM and State guidelines for total petroleum hydrocarbons (TPHs), benzene, toluene, ethylbenzene, and xylene (BTEX), or have had an evaluation of risk performed which demonstrates that the remaining contaminants will not pose a threat to fresh water, public health or the environment in the present or foreseeable future.

The Carlsbad Field Office conducted a follow-up investigation regarding potential discharge of ground water contaminated by leakage from natural gas wells into the Black River. Measurements were taken at five additional sites for Dissolved Oxygen, specific Conductivity, Salinity, Total Dissolved Solids, Ph, and water Temperature. In addition, samples were tested for BTEX and PAHs. At the Landreth-Monument Draws, pads and pits were recontoured to match surrounding topography, ripped and re-seeded with native grass and forb species. Bureau personnel identified pads, pits and roads to be treated and developed treatment prescriptions. Oil/gas companies provided materials and labor to complete the treatments.

SEDIMENT REDUCTION

Road surfacing has been completed on approximately three miles of public road under the jurisdiction of the Farmington Field Office in an effort to apply comprehensive transportation planning to the process of approving road networks in accordance with the BLM New Mexico Strategic Plan. This effort will help minimize sedimentation and salinity contributions to the Colorado River.



assists people, including groups and units of government, through local conservation districts to achieve

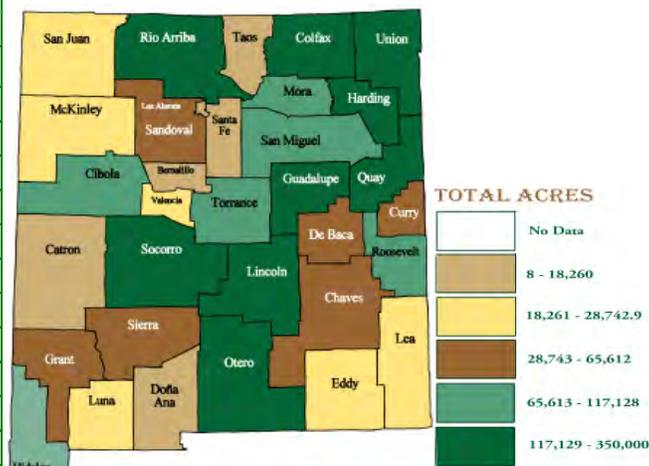
objectives for sustained use of soil, water and related resources. This assistance includes: technical advice to landowners and land users with the installation of resource management systems (including soil and water conservation practices); training people to plan, install, maintain, and assess resource management systems; and cost sharing funds to help install conservation practices and systems.

Each conservation plan addresses soil, water, air, plant, and animal resources. Nutrient, pest, and waste management components, which address proper source, rate, timing and method of application, are developed as part of the plan where applicable. Conservation practices are selected to control or reduce identified and potential nutrient, sediment, animal waste, salt, and pesticide pollution. Emphasis is placed on both on and off site effects of the pollution source and control method. Planning assistance is not only provided on a field or farm level but also on a watershed level with the collaboration of all conservation partners. Water quality technical assistance provided to individuals, groups and units of government is based on these plans. The conservation partnership participates actively in developing and implementing the State Nonpoint Source Management Plan. Other collaborative interagency efforts in water quality include tool and technology development and transfer, data sharing and database development, policy development, training, public outreach, and project design, implementation and evaluation.

The table below indicates the total for the state for each key conservation treatment. This can be used to determine broad distribution trends in service by the conservation partnership. The shaded map accompanying the table shows the total amount of conservation in acres by county.

Conservation Treatment	Total Number of Treatments in New Mexico
Waste	8
Buffers	179,306 Feet
Buffers	617 Acres
Erosion Control	167,034 Acres
Irrigation Management	29,717 Acres
Nutrient Mngmnt. Applied	9,152 Acres
Pest Management	9,851 Acres
Prescribed Grazing	1,823,573 Acres
Salinity	0 Acres
Tree and Shrub	1,700 Acres
Tillage	8,931 Acres
Wildlife	879,820 Acres
Wetlands	23 Acres
Total Conservation Treatments	2,930,417 Acres

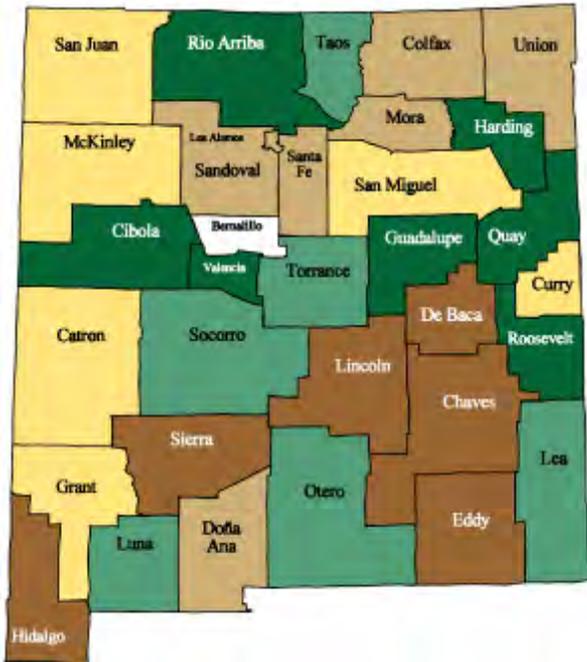
Map 1: Summary of Key Conservation Treatments



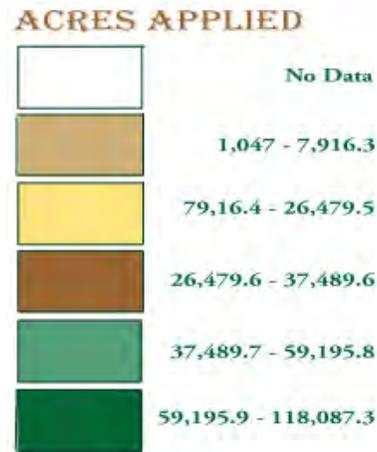
The two tables on the next page demonstrate acres of conservation systems applied for agricultural and non-agricultural

effects on ground water quality. The maps show the distribution (in acres) by county of conservation systems applied through assistance provided by the conservation partnership. Systems that address all soil, water, air, plant, and animal resource concerns are called resource management systems (RMS). These concerns are in a defined area and are planned to a sustainable level, considering economic, social and cultural factors. Other conservation systems applied at less than the RMS level usually focus on resolving a particular resource concern (e.g. an erosion problem, a soil compaction problem, a water quality problem, or a desire to improve wildlife habitat). These systems may be part of a progressive planning process that proceeds towards sustainability in stages.

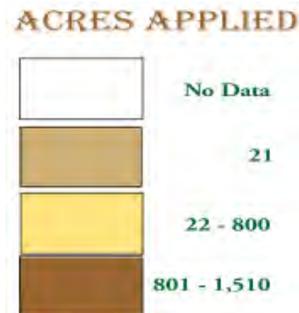
	Conservation Systems Applied for Agricultural Effects on Ground Water Quality	Conservation Systems Applied for Non-Agricultural Effects on Ground Water Quality
System Acres Applied to the Resource Management System Level (Beneficial)	222,408 Acres	0 Acre
System Acres Applied to the Resource Management System Level (Adequate)	988,399 Acres	2,331 Acres
Total Acres of Conservation Systems Applied	1,210,807 Acres	2,331 Acres



Map 2: Conservation Systems Applied



Map 3: Conservation Systems Applied for Non-Agricultural Effects on Ground Water Quality





THE NEW MEXICO SOIL & WATER CONSERVATION DISTRICTS

(SWCD), along with the Natural Resources Conservation Service and private landowners, have spent over \$20 million dollars in the last four years for *Watershed and Water Conservation* projects. Some of those projects are listed below.

Santa Fe Watershed SWCD (La Tierra Bendita y El Agua Sagrada)

Funded by the State and § 319 funds, fourteen Youth Conservation Corps interns were trained to revegetate 300 cottonwoods. Work was also done on the Maestas ditch using FEMA funding and the Office of Cultural Affairs provided funding to edit and prepare for publication of *Obra de Agricultura*. The Santa Cruz Irrigation District helped fund field trips and forums.

Claunch-Pinto SWCD (The Abo Watershed)

This project took place near Mountainair. This project is utilizing the value-added juniper to develop a market for wood products. The Soil and Water Commission helped fund a project to complete 864 acres of brush management, 3,472 cu. yards of earthen diversions and develop and perfect a juniper water consumptive use and water loss model.

The Tierra Y Montes SWCD

This project involved developing a kiln so that local cooperators can dry wood and make value-added products. This project should also contribute to a market for wood products.

Below is a list of projects that are currently ongoing by the New Mexico SWCDs:

Project	Soil and Water Conservation District
The Eastern NM Conservation Buffer Initiative	SWCD
Black River/Delaware Geographic Priority Area	Carlsbad SWCD
Gila River Watershed Restoration	Grant SWCD (Silver City)
Mimbres River Watershed Restoration	Grant SWCD(Silver City)
Lower Gila River Restoration	Hidalgo SWCD (Lordsburg)
Pecos River Tributaries Watershed	Penasco SWCD (Artesia)
Taos Pueblo & Surrounding areas	Taos SWCD
Upper Tularosa Basin Watershed Treatment	Carrizozo SWCD
Upper Pecos Watershed	Tierra Y Montes SWCD (Las Vegas)
Upper Tularosa Basin Watershed Treatment	Carrizozo SWCD
Zuni River Watershed	Lava SWCD (Grants)
Abo Watershed	Claunch-Pinto SWCD (Mountainair)
Chupadera Wash Watershed project	Claunch-Pinto SWCD (Mountainair)
The Cougar/Torrance Watershed	Claunch-Pinto SWCD (Mountainair)
Rio Brazos Watershed	Upper Chama SWCD
Rio Cebolla Watershed	Upper Chama SWCD
Jicarilla Apache Reservation	Upper Chama SWCD
Macho-Gallo Watershed	Chaves & Upper Hondo SWCD
Rio Hondo Watershed Upper Hondo	Chaves & Upper Hondo SWCD
Tramperos Creek Watershed	Mesa SWCD (Roy)
Lower Rio Grande Watershed	Socorro SWCD & Sierra SWCD (T or C)
Dark Canyon Watershed	Carlsbad SWCD



WATERSHED PROTECTION SECTION
Surface Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, N2100
1190 St. Francis Drive ~ P.O. Box 26110
Santa Fe, New Mexico USA 87502
www.nmenv.state.nm.us/swqb/swqb.html

Folsom Falls, Dry Cimarron River, Union County