

# CLEARING THE WATERS

## Newsletter

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Fall 2011

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[www.nmenv.state.nm.us/swqb/wps](http://www.nmenv.state.nm.us/swqb/wps)

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## ***EPA Recognizes Lower Santa Fe River Water Quality Success Story***

The Environmental Protection Agency has recognized the Lower Santa Fe River as a success story for the collaborative work that converted a mostly barren impaired stream to a thriving riparian corridor. The restoration is the result of several projects from Santa Fe's wastewater treatment plant off Airport Road to Cochiti, and was conducted by several partners in cooperation with the New Mexico Environment Department (NMED).

"The transformation of the Lower Santa Fe River is truly remarkable," said NMED Secretary Dave Martin. "I applaud the City and County leaders, state and federal agencies, water protection groups, and all the volunteers who came together to restore this important riparian area." In 1998 the Lower Santa Fe River was added to the state list of impaired waters because it could not support its designated uses of marginal coldwater fishery, warmwater fishery, and livestock watering. The wastewater treatment plant discharge and livestock with access to the stream led to pH, sedimentation, dissolved oxygen (DO), chlorine, and total ammonia levels causing the impairment.

Upgrades to the Santa Fe WWTP in 1996 and 1997 led to the removal of ammonia and chlorine as pollutants of concern. However, cattle grazing and

***Continued on page 2***



Cooperators celebrating the success story this fall. From left, Santa Fe mayor David Coss, SWQB Bureau Chief James Bearzi, NMED Secretary Dave Martin, EPA Office of Water's Nancy Stoner, and EPA Regional administrator Al Armendariz as well as students from the Santa Fe Indian School.

**NMED Surface Water Quality Bureau's  
Watershed Protection Section**

[www.nmenv.state.nm.us/swqb/wps](http://www.nmenv.state.nm.us/swqb/wps)

eroding riparian areas continued to contribute nonpoint source pollution to this reach of the Santa Fe River. Poor riparian condition exacerbated effects of nutrients present in the wastewater treatment plant discharge. Restoration efforts transformed the impaired reach from an erosion-prone, barren area into a lush preserve with abundant riparian vegetation and wildlife. The transformation was a result of several projects that began in 1997 when the WildEarth Guardians collaborated with the Santa Fe Municipal Airport to install fencing to keep grazing livestock away from riparian areas and prevent them from roaming onto airport runways. Exotic non-native vegetation was removed and native vegetation planted – more than 5,000 cottonwood trees and 15,000 willow trees. Additional fencing, levee removal to allow high flows to reach the floodplain, wetland creation, plantings, and outreach and education activities were crucial to the restoration effort. Shading, bank stabilization, and water quality markedly improved.

The Santa Fe City Council passed a resolution that recognized the ecological significance of the river segment by establishing a Rural Protection Zone, and encouraged its protection and restoration. That section of the river flows perennially through the preserve as a result of constant discharge from wastewater treatment plant, which provides the primary source of flow. Water quality has improved. Following restoration, samples showed no pH standard exceedances, compared to 82 exceedances before restoration. A 2009 sediment survey indicated that the percent of sediment fines had dropped to 5 percent, well below the 20 percent target. On the basis of these data, New Mexico removed pH (2008) and sedimentation (2010) from the segment's list of impairments. Additional samples collected after restoration show that DO levels consistently remain between 5 mg/L and 9 mg/L and comply with the target of greater than 5 mg/L as a 24-hour average. Therefore, New Mexico is proposing to remove the segment's DO impairment in 2012.

Primary partners include WildEarth Guardians (formerly Forest Guardians), the City of Santa Fe, the County of Santa Fe, Santa Fe Watershed Association, private landowners, the Santa Fe – Pojoaque Soil and Water Conservation District, and NMED. Approximately 70 volunteers planted native vegetation and learned about riparian systems during a Santa Fe River Stream Team event. Other planting programs were carried out by area schools, volunteer groups, and the state's inmate work program.

Several project partners convened at the river on October 26 to reflect on ten years of progress, celebrate their success, and share it with EPA's highest levels of management. EPA's Acting Assistant Administrator for Water Nancy Stoner and Regional Administrator Al Armendariz, by visiting the river in person, expressed their strong encouragement for projects that restore streams to meet their water quality standards. Nancy Stoner wrote of the event, "what truly inspired me – and everyone standing along the river that day – is the story of partnership. The federal, state and local government, along with environmental groups and private citizens, all worked together. It shows that water is vital to all of us and success in stewardship is a collective effort."



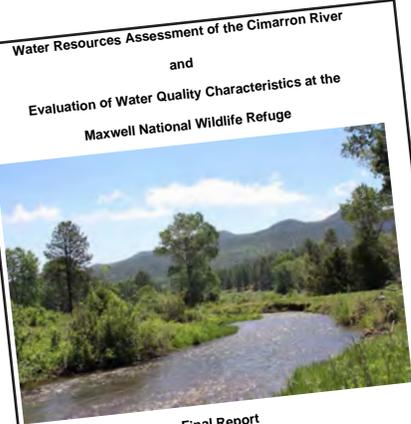
*The Santa Fe River below the Santa Fe wastewater treatment plant before (1997) and after (2004) restoration.*

## UNM Water Resources Students Put Skills to Test

By Karen Wentworth, University of New Mexico

Every summer students in University of New Mexico's Water Resources 573 course hit the road to evaluate the environmental health of a stream or river in New Mexico. The class teaches the students methods of water resource evaluation and ways to evaluate and interpret information on the management of water resources in a particular watershed. Two instructors, Bruce Thomson, director of the Water Resources Program, and Abdul-Mehdi Ali, senior research scientist and manager of the Analytical Chemical Laboratory for Earth and Planetary Sciences, designed the course and travel with the students each summer.

In June 2011, the class examined the Rito Peñas Negras in the Santa Fe National Forest. Their objective was to assess the stream and determine its characteristics, quality and ability to support high quality coldwater aquatic life. They assessed the stream at five locations, measuring flow, water quality, stream geomorphology and conducted field identification of benthic macroinvertebrates. They also measured stream flow and water quality at three other sites in the watershed. The survey was conducted in late spring, just after peak water flow, and the students found that it was flowing well below bank full conditions, something they attributed to the dry winter. They also found that the water quality was very high and that generally the stream was in good condition with little silt accumulation and extensive undercut banks for fish refuge. However there is virtually no woody riparian vegetation in the lower reaches of the stream. This lack of shade may cause the water to become too warm for the cold water trout the Forest Service hopes to re-establish in the stream.



Final Report  
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June 2010

Students in the Water Resources program examine a different watershed each year. In 2010, UNM students examined the condition of the Cimarron watershed and Maxwell Wildlife Refuge in northern New Mexico. The reports are sent to the Office of the State Engineer, the NM Environment Department, and local watershed representatives. The reports are also available on the Water Resources Program website [www.unm.edu/~wrp/](http://www.unm.edu/~wrp/).

Water Resources 573 is part of UNM's Water Resources Program in University College. It is a master's degree program and allows students to pursue either a Hydrosience track which emphasizes hydrology, hydraulics, biology, chemistry and environmental science or a Policy/Management track with an emphasis on policy, management, administration, economics and planning.



# Watershed Protection Section Update

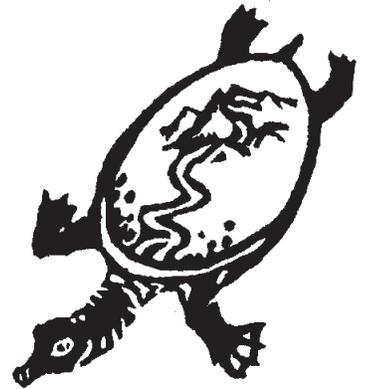
## New Projects to Begin in 2012

By Abe Franklin, WPS Program Manager

The Watershed Protection Section and four cooperators have completed and submitted workplans to EPA for new projects to be funded under Section 319 of the Clean Water Act. These projects were identified through two Requests for Proposals (RFPs) conducted in the spring. Three of the four workplans were approved by EPA in October. EPA requested that an analysis of expected pollutant load reductions be presented in the workplan for the fourth project. Here is a summary of each project:

### ***Black Canyon Watershed-Based Plan***

This project will supplement an existing watershed plan for the greater Gila region, by adding significant detail for Black Canyon Creek. The project will address the nine planning elements in EPA's Nonpoint Source (NPS) Program and Grants Guidelines for States and Territories, and determine how best to implement an established temperature Total Maximum Daily Load (TMDL). The project will be implemented by the Upper Gila Watershed Alliance, which will implement the project for a combined cost (Section 319 and non-federal match) of \$52,677.



*Upper Gila Watershed Alliance*

### ***Updating a Watershed-Based Plan for the Lower Embudo Watershed***

This project will revise an existing Watershed Restoration Action Strategy to address the nine planning elements in EPA's NPS Guidelines for Embudo Creek in Rio Arriba County (portions of the project area are upstream in Taos County). The coldwater aquatic life use in Embudo Creek from the Rio Grande to the Cañada Ojo Sarco is impaired by sedimentation (excessive sediment on the stream bed) and turbidity (fine sediment suspended in the water column). TMDLs were approved by the New Mexico Water Quality Control Commission and EPA in 2005, which set overall goals for these parameters. This project will characterize the problem in greater detail and identify solutions with quantitative estimates of sediment load reductions that may be achieved with different management measures. Earth Works Institute will implement the project for a combined cost of \$355,288.

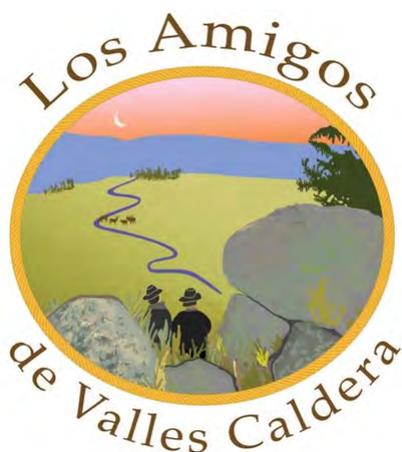


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**Riparian Restoration along the Rio de las Vacas, NM:  
Addressing Non-Point Source Impairments**

This project will partially address nutrient and temperature impairments within the Rio de las Vacas, in the Jemez watershed, using a combination of fencing, planting of native woody vegetation, and bank stabilization structures. Barbed wire and buck and pole fences will be installed to reduce grazing pressure and limit access by off-road vehicles to the riparian area and adjacent meadows. The project will be implemented along approximately 2.2 miles of the lower Rio de las Vacas on land managed by the Santa Fe National Forest. Rocky Mountain Ecology, LLC will implement the project for a combined cost of \$240,558.

# Rocky Mountain Ecology LLC



**Reducing Temperature and Turbidity on San Antonio Creek by Restoring Slope Wetlands on Six Tributaries**

This project will employ plug-and-pond techniques and utilize low-tech, volunteer-built structures to arrest gully formation and re-wet adjacent wetlands in six small watersheds tributary to San Antonio Creek, in the Valles Caldera National Preserve. EPA requested that the workplan for this project be revised to include analysis of pollutant load reductions expected for different proposed management measures, so that an effective combination of management measures can be selected during the project's design phase. If approved, the project will address temperature and turbidity impairments in San Antonio Creek. Los Amigos de Valles Caldera plans to implement the project for a combined cost of \$276,480.

**For more information...**

A wealth of data on Section 319 projects is available on the Grants Reporting and Tracking System (GRTS), at <http://iaspub.epa.gov/grts/projects>. All of New Mexico's current projects appear under grants awarded in 2008, 2010, and 2011. New projects will be added to GRTS in early 2012.


U.S. Environmental Protection Agency

**Grants Reporting and Tracking System - GRTS**

[EPA Home](#) > [Guest Home](#) > [Find Projects](#)

**Browse Section 319 Nonpoint Source Projects in GRTS**

Use the dropdown menus below to select the parameters of interest and click the 'GO' button. Click the 'View' link to access a summary report of a particular project.

Fiscal Year:	2008	EPA Region:	Any	State:	New Mexico	Project Title:	
TMDL:	- All Choices -	Has Pollutant Data:	- All Choices -	Project Status:	- All Choices -		
Type of Project:	- All Choices -	Category of Pollution:	- All Choices -				

State	Fiscal Year	Proj#	Title	[View]
NM	2008	01	Project: Mimbres River / Cold Springs Rehabilitation	[View]
NM	2008	02	Project: Largo Canyon - Road Maintenance Education	[View]
NM	2008	03	Project: Respect the Rio - Education/Empowerment/Restoration	[View]

# Wetlands Program Project Spotlight

## Mesilla Valley Bosque State Park

By Chris Canavan, SWQB-WPS Team Leader

The New Mexico Environment Department (NMED) and the New Mexico State Parks Division (State Parks) of the New Mexico Energy Minerals and Natural Resources Department partnered to conduct wetlands restoration to reintroduce historic wetland conditions on approximately 30 acres adjacent to the Rio Grande at Mesilla Valley Bosque State Park near Las Cruces. A variety of methods were used to achieve project goals including: removal of non-native salt cedar, mechanical disturbance of coyote willow to promote regeneration, and replanting native riparian and wetland vegetation. In addition, the project developed a docent-training program that will train volunteer staff to educate visitors about wetlands and wetland restoration methods.



*Wetlands at Mesilla Valley Bosque State Park*

Mesilla Valley Bosque State Park is located on the Rio Grande in the El Paso-Las Cruces Watershed. Historically, this stretch of the Rio Grande had a fairly wide floodplain with a sinuous and sometimes braided



*Docents learning wetland plant identification in the field.*

meandering channel with small oxbows, sloughs, cienegas, marshes and other associated wetland features. Annual spring flooding, and flooding from monsoon rains in late summer and early fall were an integral part of this system. These floods regenerated riverside ecosystems by germinating cottonwood seeds, flushing salts from soils, re-arranging channels and rejuvenating floodplain bosque wetlands. Today, the Rio Grande in the Mesilla Valley is contained within levees and is controlled by a dam at Elephant Butte Reservoir upstream. While this provides a reliable source of water for agricultural use, and reduces the risk of flooding, it has altered the hydrogeomorphic characteristics of the river by removing much of the sinuosity of the channel, greatly reducing wetland habitat, eliminating regenerating spring flood flows and disconnecting the river from its floodplain.

The Mesilla Valley Bosque State Park Wetlands Restoration Project was administered by the SWQB Wetlands Program and was funded by the Environmental Protection Agency with a grant provided under Section 104(3)(b) of the Clean Water Act. State Parks oversaw the project and assisted in identifying potential restoration areas within Mesilla Valley Bosque State Park. The U.S. Fish and Wildlife Service (USFWS) was a key cooperater by assisting State Parks and SWQB with determining restoration potential, planning restoration activities, and implementing much of the restoration. They continue to work closely with State Parks and SWQB in assessing the restoration progress. Their support has been critical to the success of the project. Initial ground surveys conducted by the USFWS, State Parks and SWQB personnel determined that much of the area to be treated had sufficient native undergrowth and potential seed source to promote expansion following the disturbance associated with treatment. As a result, the general approach to restoration was to remove the non-native salt cedar and monitor the treated areas for increased vigor of the native plants and germination of native plants from the existing seed bank. Large live salt cedars, including root crowns, were extracted using a tracked excavator with a thumb attachment. A bobcat with a brush rake

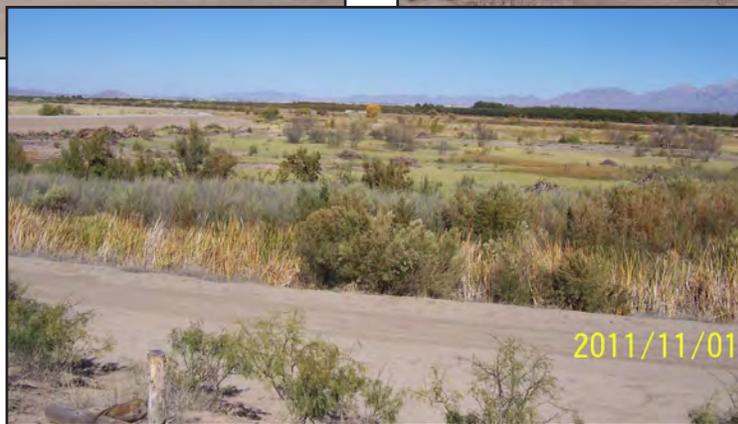
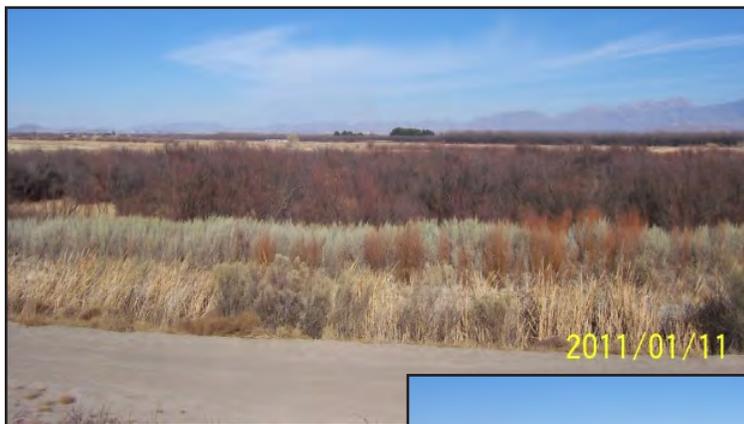
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## **MESILLA continued from page 6**

attachment was used to rake and pile the resulting biomass. The majority of the woody biomass from 7 acres was chipped and transported from the site by State Parks with assistance from an inmate work crew. The remaining slash was piled and will be burned this winter when safe conditions exist and fire crew personnel are available to manage the burning. The bobcat with brush rake was also utilized to open up and promote growth of a stand of coyote willow. Rio Grande cottonwood and Gooding's willows were planted by State Parks and an inmate work crew in the floodplain outside the treatment area to provide additional habitat diversity. Monthly evaluations of plant succession took place from March-October 2011, and annual monitoring of monumented line-point intercept transects will continue for a period of three years. Follow-up spot treatment will be conducted by State Parks into the foreseeable future (at least three years).

The goal of the docent training program was to train approximately 10 docents that volunteer at the park, and to develop a training manual for future trainings. Four, 4-hour trainings were held from April-June, 2011. Four skill sets were utilized for the training; Initial Engagement of Visitors at Visitors Center; Conducting Outdoor Tours; Local and Park History and Park Management; and a Plant and Animal Skill Set.

As a result of the technical expertise and hard work of the cooperators, the Mesilla Valley Bosque State Park Wetlands Restoration Project was a huge success. The project restored 27.5 acres of wet meadow habitat and 1.0 acres of open marsh habitat from the salt cedar treatment, and approximately 1.0 acres were restored with coyote willow following disturbance with the brush rake. An additional 1.5 acres of riparian habitat was developed from pole planting for a total of 31 acres of wetland habitat restored. The success of the project, the techniques employed, and the importance of wetland restoration along the Rio Grande in southern New Mexico has also been disseminated to the public in two separate interviews which were aired on a local radio and television station in the spring and summer of 2011. The spring interview can be viewed at [www.youtube.com/watch?v=w1K4wDniKhs](http://www.youtube.com/watch?v=w1K4wDniKhs).



*Northeast quadrant of the project area before (upper left), during (upper right), and ten months (lower center) after treatment.*

# GET INVOLVED!

See the events below for opportunities to learn about watersheds and how to restore them.

**December 1-2nd** - 18th Western Water Law Conference. "New Developments in Western States" Phoenix, AZ. For more details, see <http://is.gd/X6DYLv>.

**December 9th** - University of New Mexico Department of Earth and Planetary Sciences colloquium series. John Fleck, Albuquerque Journal, "Chasing Water - The Draining of Lake Mead and its Implications for Water in New Mexico and the West" 2:00 PM in Northrop Hall, Room 122. For more details, see <http://epswww.unm.edu/401seminar.htm>.

**December 13-14th** - 56th Annual New Mexico Water Conference. "New Water New Energy: A Conference Linking Desalination and Renewable Energy" Sgt. Willie Estrada Memorial Civic Center, Alamogordo, NM. For more details, see <http://wrri.research.nmsu.edu/>.

**January 12th, 2012** - New Mexico Water Dialogue 18th Annual Statewide Meeting "Changing Waters: Adaptation and Resilience." Indian Pueblo Cultural Center in Albuquerque. For more details, see [www.nmwaterdialogue.org/](http://www.nmwaterdialogue.org/).

**January 24th** - The University of Arizona Water Resources Research Center 2012 Conference "Urbanization, Uncertainty and Water: Planning for Arizona's Second Hundred Years." UA Student Union Memorial Center, Tucson, AZ. For more details, see <http://cals.arizona.edu/AZWATER/programs/conf2012/>.

**March 27-29th** - 2012 Arid LID Conference "Integrated Approaches to Green Infrastructure and Low Impact Development." Tucson, AZ. For more details, see [http://www.aridlid.org/?page\\_id=277](http://www.aridlid.org/?page_id=277).



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