

CLEARING THE WATERS

Newsletter

Volume 15, No.3

Fall 2010

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www.nmenv.state.nm.us/swqb/wps

This newsletter is published quarterly by the Watershed Protection Section of the New Mexico Environment Department's Surface Water Quality Bureau. Funding provided by a CWA §319(h) grant from EPA.



Another Successful Watershed Forum

By Karen Menetrey, NMED-SWQB

The 2010 New Mexico Watershed Forum "From Mountaintop to River Bottom: Teaming Up for Healthy Watersheds" brought together 245 people from throughout and beyond New Mexico over three days to attend presentations, workshops and a field trip of multiple on-the-ground watershed restoration projects. Participants included representatives of federal, tribal, state and local natural resource agencies; non-profit conservation and watershed groups; and consultants, engineers and restoration practitioners. There were 48 speaker presentations, approximately 20 poster sessions and 15 exhibitor tables. The overall focus of the presentations was to how to use collaboration to improve forests, rivers, and wildlife habitats. Workshops ranged from policy, planning, monitoring, practices, organizational development and educational outreach. Participants learned practical tips for implementing restoration projects, how to determine project effectiveness, how to build organizational capacity, and about emerging plans for environmental flow protection in New Mexico.



2010 Watershed Forum at the Albuquerque Hilton

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

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What is the value of such a gathering? We celebrated and learned from our successes, as well as gained a broader understanding of the challenges and advantages of working together. We strengthened professional relationships, met new people and planted the seeds for future collaborations that will preserve and restore New Mexico's environment. The forum was a collaborative effort in itself, with representatives from five agencies, three non-profits and a contractor (River Source) sharing responsibilities over a six month planning period that resulted in a successful event.



Photos courtesy of River Source

Bluewater Temperature Reduction and Riparian Restoration Project

By Mike Matush, SWQB-WPS

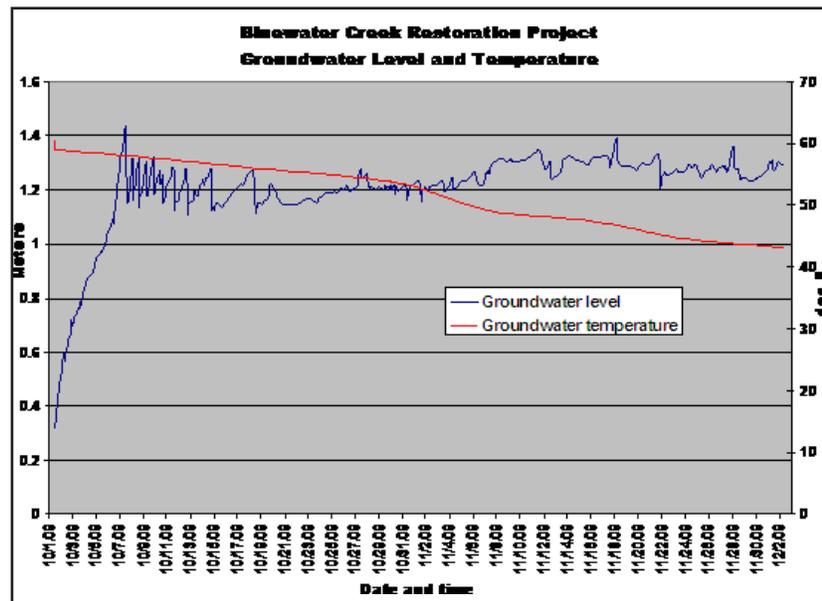
In 2009, The WildEarth Guardians were awarded EPA funding to mitigate high surface water temperatures at Bluewater Creek, Cibola County by providing needed shade through riparian tree plantings. An important step when considering riparian plantings is to perform groundwater monitoring to determine the ability of the site to provide suitable growing conditions. The New Mexico State Land Office recently installed a piezometer at Bluewater Creek in an effort to measure groundwater depth and fluctuations. This instrumentation also records groundwater temperature, which may be used to model changes in temperature at the planting site. Surface water and bank temperatures are also being measured approximately 2 miles upstream and at the planting site to help understand temperatures of the inflow versus those at the planting site. In addition to the increased tree canopy, habitat and recreational values were enhanced on State Trust lands surrounding Bluewater Reservoir.

A well point and series of galvanized steel pipes were used to construct the piezometer. A pressure transducer/water level logger was installed in the pipe to collect water level data at defined time intervals and store the data digitally. By operating in a continuous 24/7 monitoring mode, users can observe changes in groundwater levels due to seasons, floods, droughts and possibly plant use. The level loggers are programmed using a laptop computer and an optical reader. The level logger can record groundwater levels and water temperature every 0.5 seconds to once every 99 hours or to an event based option, and the battery life is approximately 10 years. Since barometric pressure affects water levels in the pipe, a second level logger (i.e. barologger) was mounted aboveground to measure barometric pressure. Those data are used to compensate pressure gradients inside the borehole pipe so true groundwater level readings are achieved. Barologgers also measure ambient air temperature which can be compared to bank, surface and groundwater temperature and the added increments of shading as the willow and cottonwood mature.



Completed piezometer

Once the well point and pipe were assembled, the pipe was pounded into the alluvial (streamside) aquifer with a post pounder. The well point must be deep enough so groundwater fluctuations do not go below the well point and transducer or you will lose the ability to measure groundwater levels. A fitted galvanized cap on a short pipe extension with a coupler was used with the post pounder to drive the piezometer pipe into the ground. As the pipe was driven into the ground, additional pipe extensions were attached for the desired depth of the piezometer. After installation, the transducer was suspended from a threaded cap by a coated wire cable to the bottom of the well point. A lock was attached through the cap for security. Occasionally clay fines from long-term groundwater movement infiltrate into the piezometer. A simple inertial pump can remedy this problem.



The transducer software allows immediate viewing of the data in graph or chart form, or simple downloading for future examination. It also easily exports data into a spreadsheet or database for further processing.

Contact the author at mike.matush@state.nm.us for further information on equipment and supplies.

Watershed Protection Section Update

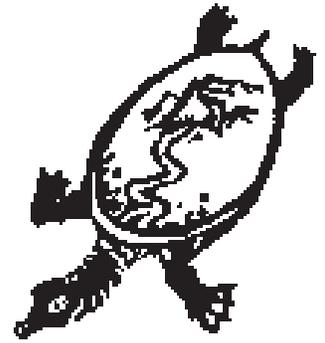
New Projects to begin in 2011

By Abe Franklin, WPS Program Manager

The Watershed Protection Section and five cooperators have completed and submitted workplans to EPA for six 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, and approved by EPA in October. A seventh project identified through one of the RFPs is following a different process, and EPA approval is pending for that project. Here is a summary of each project:

Mogollon Creek Watershed Based Plan

This project will supplement an existing watershed plan for the greater Gila region, by adding significant detail for Mogollon Creek. The project will explore portions of the Clean Water Act related to standards development and assessment of designated use attainment. If an aluminum impairment is confirmed, the project will address the nine planning elements in EPA's Nonpoint Source (NPS) Program and Grants Guidelines for States and Territories for Mogollon Creek, and determine how best to implement an established aluminum 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 \$75,040.



Upper Gila
Watershed Alliance

Updated Watershed Based Plan for the Upper Gallinas Watershed

This project will revise an existing Watershed Restoration Action Strategy to address the nine planning elements in EPA's NPS Guidelines for the Gallinas River in San Miguel County. The high quality coldwater aquatic life use in the Gallinas River upstream of the Las Vegas diversion is impaired by excessive temperatures. A temperature TMDL was approved by the New Mexico Water Quality Control Commission and EPA in 2005, which set an overall pollutant load reduction goal for the stream to meet its temperature standard. This project will characterize the problem in greater detail and identify solutions with quantitative estimates of temperature reductions that may be achieved with different management measures. The Citizens' Watershed Monitoring Team will implement the project for a combined cost of \$182,210.



Citizens' Watershed
Monitoring Team

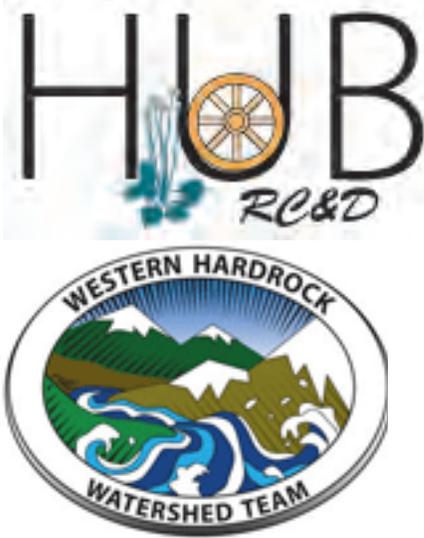
Upper Rio Grande Basin Plan Development for Ecological Restoration

This project will develop a watershed based plan for the Rio Grande between the Red River and the Colorado–New Mexico border, which will lay out strategies for implementing a temperature TMDL in that reach. The project will consider temperature and flow of springs and tributaries as well as riparian conditions and land and water use in the watershed. Tetra Tech will implement the project by coordinating a team of local and regional experts who will engage numerous stakeholders on both sides of the New Mexico-Colorado border. The combined cost of the project (Section 319 and non-federal match) will be \$234,868.



TETRA TECH

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Collaborative Water Quality Improvement Project for the San Juan Watershed Phase III

This project will provide coordination among programs and recruit agricultural producers to implement agricultural best management practices with the goal of reducing runoff of nutrients and bacteria into the Animas and San Juan Rivers. A second project component will implement non-agricultural, or non-EQIP eligible, best management practices. The San Juan Watershed Group (SJWG) will implement the project in cooperation with the Western Hardrock Watershed Team, which will place an AmeriCorps/VISTA volunteer with SJWG to assist with landowner outreach, more general community outreach, and monitoring. The Hub Resource Conservation and Development Council will provide fiscal sponsorship for the project, which will have a combined cost of \$556,923.

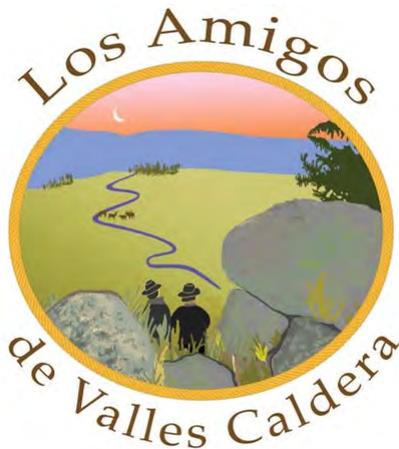
Redondo Creek and San Antonio Creek Restoration and Temperature Reduction

This project will partially address turbidity and temperature impairments within San Antonio and Redondo Creeks, in the Jemez watershed, using a combination of riparian fencing, planting of native woody vegetation, and bank stabilization structures. The project will be implemented along approximately 3.5 miles of these streams on the Valles Caldera National Preserve and adjacent Santa Fe National Forest lands. WildEarth Guardians will implement the project for a combined cost of \$505,124.



Rito Peñas Negras Restoration and Temperature Reduction Project

This project will employ a similar approach to address water quality problems (sedimentation, temperature, and nutrients) along approximately 1.8 miles of the Rito Peñas Negras, on the Cuba Ranger District of the Santa Fe National Forest. WildEarth Guardians will implement the project for a combined cost of \$361,265.



Restoring Jaramillo Creek

This project is still being reviewed by EPA. If approved, the project will address a temperature impairment on Jaramillo Creek (a tributary of the East Fork Jemez River on the Valles Caldera National Preserve) through a combination of fencing, riparian plantings, installation of bank stabilization structures such as post vanes, and dirt road drainage improvements. The project would be implemented by Los Amigos de Valles Caldera for a combined cost of \$298,417.

The Christmas Tree Project

By Neal Schaeffer, SWQB-WPS

The New Mexico Environment Department supports watershed groups by funding two kinds of activities: planning and implementation. The idea is first to support careful, detailed watershed planning and then projects that effectively implement those plans. Watershed planning requires stakeholder involvement (local wisdom, as well as local buy-in). SWQB won't spend precious restoration resources without good planning – we limit our investment risks.

But even with an excellent plan and a great design, pulling off a project is still difficult. The group may lack the organization or experience to manage projects like these, and group coordinators will tell you that it's easy to underestimate the work. SWQB used to fund small projects to show a group what it entails, but these days we have enough experience to walk new groups through this process. This article is about one of our last “demonstration projects” originally funded in 2005.

In 2002, SWQB hosted public meetings about an upcoming watershed survey in the San Juan River. These evolved into the San Juan Watershed Group (SJWG). We found evidence of nutrient problems on the tributary Animas River. This led to a SJWG committee that eventually spun-off into a separate Animas Watershed Partnership (AWP). AWP obtained funding from both Colorado and New Mexico 319 programs. Meanwhile, SJWG obtained a separate 319 grant focusing on sediment and bacteria problems on the San Juan River. Both of these New Mexico grants included a demonstration project (\$50,000 to SJWG and \$38,610 to AWP).

Like most watershed groups, they experienced growing pains; and their demonstration projects delayed. Also like most watershed groups, they used local understanding to identify “hotspots” and creative solutions. The groups jointly developed fine-resolution data about pollution sources. They created a new Geographic Information System (GIS) for these data, as well as all the old data they could find. Professionals familiar with the streams used the GIS to shortlist potential “demonstration projects”. An AWP VISTA volunteer contacted the landowners to arrange site visits.

In the end, the groups pooled their funding and selected a single large project, Kiffen Creek. A lower portion was a blown-out sandy wash with a shallow channel 200 to 300 feet wide and high banks up to dryland vegetation. The channel was perennially wet from springs, and the adjoining downstream reach supported robust riparian areas with a channel only 80 feet wide. The project goal was to reduce sediment and nutrient loading to the Animas River by reestablishing a single thread channel, reducing bank erosion, retaining sediment, improving riparian vegetation, increasing floodplain water storage, and decreasing downstream flooding. Both groups approved this project, and the consulting hydrologist/ecologist (Mark Oliver, Basin Hydrology, Inc., Durango, Colorado) developed alternative restoration designs. The groups selected one, and then selected a contractor via competitive bidding. The project involved the landowner (contributed thousands of dollars), ConocoPhillips (donated equipment, labor, concrete “deadmen”, and fill soils), the consultant (Oliver), the Corps of Engineers (permitting), the local floodplain manager, SWQB, AWP, and SJWG.

The novel design demonstrates more local wisdom. While sitting in his office a few weeks before Christmas, Oliver noticed a car with a Christmas tree on its roof and thought that soon it would be in the landfill. “Why not use them for woody debris to stimulate floodplain development instead?” Immediately after

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Christmas, volunteers and ConocoPhillips personnel intercepted hundreds from collection centers and stockpiled them at the project site. I believe they sang, "Oh Christmas Tree! Oh Christmas Tree! Will you cause dep-o-si-tion!"

In early June, they restored 7.3 acres of sandy wash. They used 8,000 cubic yards of soil, 200 Christmas trees, 50 concrete deadmen, and 100 concrete waste blocks to create a stable, narrow channel. Through careful hydrologic analysis, Oliver designed the new channel to move flood sediments and water without "flopping around" and washing out everything. The soils were "sugar sand".

Within a week of project completion, the site experienced the first of many large floods! This was so severe that the Governor declared states of emergency. When the waters receded a month later, the project had trapped about 4,000 cubic yards of new sand. All were pleased that Oliver's hydrologic geometry worked, but no one wanted to test those sugar sands like that again. Volunteers promptly planted a couple thousand cottonwoods that hopefully will be established before any more flooding.

The project had indeed worked as intended, but within weeks instead of years, and without the benefit of stabilizing vegetation. This project reduces stream pollution and creates quality wetland. It also reduces downstream flooding, saves productive agricultural land from washing away, and even repurposes trees and concrete heading for the landfill. Not bad, for a mere demonstration project!



Looking upstream at a series of Xmas trees in place right after construction



Same general view as above photo, but after several floods created significant sediment deposition.



before



after

GET INVOLVED!

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

November 18th - New Mexico Water Conservation Alliance meeting and presentation “Commercial, institutional, and industrial facilities Water Conservation Audits” 1:00 to 4:00PM at the Bureau of Reclamation Offices 555 Broadway N.E., Albuquerque. <http://wrri.nmsu.edu/wrdis/nmwca/alliance.html>

November 30th - Water Quality Control Commission public meeting. State Capitol Building, Room 317, 490 Old Santa Fe Trail, Santa Fe. Check www.nmenv.state.nm.us/WQCC/index.html for an updated agenda, but the meeting will include public deliberations by the Commission on the Outstanding National Resource Waters proposal.

December 2-3rd - 55th Annual New Mexico Water Conference “How Will Institutions Evolve to Meet Our Water Needs in the Next Decade?” Corbett Center, New Mexico State University Las Cruces. For more information, visit <http://wrri.nmsu.edu/conf/conf10/conf.html>

January 13th, 2011 - New Mexico Water Dialogue’s 17th Annual Statewide Meeting “Economic Stress: Hard Times for Water Planning and Management.” From 8:30 AM to 4:00 PM at the Indian Pueblo Cultural Center in Albuquerque. For more information, visit http://www.nmwaterdialogue.org/up_events.html



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