

# CLEARING THE WATERS

## Newsletter

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Editor:

Matt Schultz

matthew.schultz@state.nm.us

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## Collaborations Address Legacy Mine Impacts

By Dan Hintz, AmeriCorps OSM/VISTA Gila Resources Information Project

In January, the Office of the Natural Resources Trustee (ONRT) released their final restoration plan for groundwater damages at the Freeport McMoRan Chino, Cobre and Tyrone mines. The final plan "identifies those restoration projects which would best compensate the public for injuries to groundwater resources that resulted from the release of hazardous substances from the three mines." A clean up of the San Vicente tailings in Silver City is one project that fit this criterion and had support from local residents long before ONRT's groundwater damages settlement. Through the collaborative efforts of non-profit organizations, government agencies, community groups, schools, and individual citizens, ONRT chose to fund a full clean up and removal of the San Vicente tailings.

The San Vicente tailings are orange, rusty looking mill tailing piles consisting of approximately 22,000 cubic yards directly adjacent to San Vicente Creek that remain from the Silver City Reduction Works. This milling and smelting operation for lead, silver, copper, and gold operated from the 1880's until the 1940's. The remaining tailings contain elevated concentrations of lead,

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Erosion of orange mill tailings from Silver City Reduction Works near the riparian zone of San Vicente Creek.

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

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copper, zinc, arsenic and cyanide, which during heavy monsoon rains can wash into San Vicente Creek which ultimately recharges the area's groundwater. While this has been a problem for decades, funding has been unavailable and there is no responsible party because the site is considered a "legacy mine" site since it shut down before 1977.

In 2009, Gila Resources Information Project (GRIP) partnered with the New Mexico Environment Department to secure a three year AmeriCorps VISTA assignment at GRIP to help address the impacts of legacy mining within the Silver City Watershed. The AmeriCorps VISTA staff at GRIP is part of the Western Hardrock Watershed Team, which was started by the Office of Surface Mining to confront the challenges that remain from historic mining in New Mexico and Colorado. One of the main goals for the AmeriCorps VISTA project at GRIP was to raise awareness about the hazards legacy mine sites can pose to the local watershed with the ultimate goal of securing funding and community support for cleanup and removal of the most contaminated sites.

With San Vicente Creek and the San Vicente tailings as the main focus, GRIP's first AmeriCorps VISTA member launched a citizens' volunteer monitoring group in 2010 called the Silver City Watershed Keepers (SCWK). The group was formed not only to monitor the health of San Vicente Creek, but also to raise awareness about the sources of contamination that affect Silver City's main waterway. The group hosts events with assistance from the NMED Surface Water Quality Bureau. The SCWK have worked with local schools, community groups, and residents to raise awareness of the San Vicente tailings and try to promote San Vicente Creek as a place for education and recreation with a continued need for restoration and community stewardship.

When ONRT reached an agreement on the \$13 million groundwater damages settlement with Freeport McMoRan, GRIP realized this could be a one time opportunity to secure funding for the cleanup of the San Vicente tailings. GRIP's AmeriCorps VISTA staff member worked with the SCWK, Grant County Trails Group, Town of Silver City, Aldo Leopold High School and many other local residents to write letters of support for a full cleanup and removal of the San Vicente tailings. The project will be funded by ONRT for \$4.8 million and the project is scheduled to start in 2012. With the San Vicente tailings cleaned up, it will not only protect groundwater, but also allow for further recreational trail development and safe use of the riparian zone along San Vicente Creek.

For more information on the ONRT and the Groundwater Restoration Plan see:  
[www.onrt.state.nm.us/ChinoCobreTyrone.html](http://www.onrt.state.nm.us/ChinoCobreTyrone.html).



*Monsoonal damage to stormwater detention berm allowing the release of mill tailings to San Vicente Creek.*

# Watershed Protection Section Update

## Two Requests for Proposals to be Released

The Watershed Protection Section plans to release two requests for proposals (RFPs) in March. One RFP will solicit proposals to develop new watershed-based plans or update existing plans to identify and build the methods, programs, and partnerships required for eligible streams to meet their water quality standards. Each new planning project must address at least one total maximum daily load (TMDL) for an impaired stream, or develop a hydrologic solution to a water quality problem in a limited category of streams without TMDLs (Category 4C streams). More information on the planning elements required for these projects is provided in the *Nonpoint Source Program and Grants Guidelines for States and Territories* available at [www.epa.gov/owow/nps/cwact.html](http://www.epa.gov/owow/nps/cwact.html).

The second RFP will solicit proposals for on-the-ground projects that implement watershed-based plans, focusing on meeting TMDL goals, or on meeting hydrologic goals for Category 4C streams. The RFP will ask for citations of either a watershed-based plan or equivalent documents to support the proposed work. The ultimate goal of this approach is to delist impaired streams, or move towards that goal.

The RFPs will be open for approximately eight weeks. Projects funded under either RFP will require a minimum forty percent non-federal match, which may consist of cash expenditures or in-kind contributions of labor, equipment, and materials. Both RFPs will include opportunities for potential applicants to ask questions. Public meetings are planned in three locations (See calendar on page 8), and a deadline for submitting written questions will be provided in the RFPs. For more information, see [www.nmenv.state.nm.us/NMED/RFP](http://www.nmenv.state.nm.us/NMED/RFP).

## New Section Employee

Shelly Barnes is our new Environmental Scientist–Specialist for the Wetlands Program of NMED's Surface Water Quality Bureau. Shelly previously worked with the US Fish & Wildlife Service as a Biologist on threatened and endangered species recovery programs, invasive species management, habitat improvement, and ecological restoration throughout Nevada and New Mexico. She also spent several years working with a non-profit organization teaching teams of high school and college-aged interns from around the country field work techniques to inventory and monitor plant communities and habitat changes on National Wildlife Refuges in New Mexico. Shelly holds a degree in Environmental Management from Harvard University. She began working in wetland and riparian ecosystems in Cape Cod, Massachusetts with estuaries and salt marshes and the interesting variety of bogs and fens in New England. Shelly will serve as Project Officer for a number of Wetland Program Development Grants including a project mapping and classifying all wetlands in the Canadian River watershed and a project developing innovative techniques for the restoration of slope wetlands within the Comanche Creek watershed.



**“Since moving to New Mexico in 2004, I have become increasingly interested in the protection and restoration of the limited aquatic resources of the State and look forward to working with communities and stakeholders to improve the quality and quantity of wetlands and riparian areas throughout our watersheds.” -Shelly Barnes**

# *New Mexico Riparian Council Awards*

It was twenty years ago that the New Mexico Riparian Council began promoting, protecting and enhancing New Mexico's precious riparian resources. Throughout this time many talented people have contributed to the mission of the Riparian Council by stimulating and supporting the wise management and restoration of New Mexico's river corridors and wetlands. More information on the New Mexico Riparian Council can be found at: [www.ripariancouncil.org](http://www.ripariancouncil.org).

This year the Riparian Council continues its tradition of celebrating those who have shown leadership and exceptional service in support of New Mexico's riparian areas.

## **The 2011 Riparian Council Award Winners are:**

### **The Partnership Award**

**Susan Kelly – Director (retired), Utton Transboundary Resource Center**

Many of the projects Susan led during her career required the coordination and support of multiple varied partners, such as her leadership in establishing Albuquerque's bike trails, her leadership in Albuquerque's water rights office, and the many conferences she organized while leading the Utton Center.

### **The Education/Public Awareness Award**

**Beth Dillingham – Superintendent of the Rio Grande Nature Center**

Beth has been intimately involved in outdoor education for over two decades. She began visiting the Sandia Mountain Natural History Center in her youth and returned to become its Director as she started her career. She then went on to be the Education Coordinator for the Rio Grande Zoo before taking the helm at the Rio Grande Nature Center. Tens of thousands of people benefit from Beth's education programs and projects every year.

### **Habitat Enhancement Award**

**Jim Matison – Restoration Projects Director, WildEarth Guardians**

Jim leads efforts to restore riparian and wetland ecosystems. His methods include 'hands-on' habitat restoration that involves agency partners, students, and private landowners. Jim is a strong advocate for the understanding and promoting of the riparian corridor and its function in southwest riverine systems. He has managed at least 11 projects in New Mexico for WildEarth Guardians. His efforts have led to the restoration of numerous riparian miles in degraded ecosystems promoting diversity and increased water quality.

### **Research Award**

**Dr. Bob Parmenter – Director of Science and Education, Valles Caldera Trust**

Dr. Parmenter is responsible for organizing and coordinating the research, inventory and monitoring programs on the Valles Caldera National Preserve. His work has incorporated science as an integral part of the strategic and programmatic planning and decision making process at the preserve. The Valles Caldera Trust has made great strides as a National Preserve in documenting the unique characteristics and habitat of this caldera and improving the management methods to support increased diversity.

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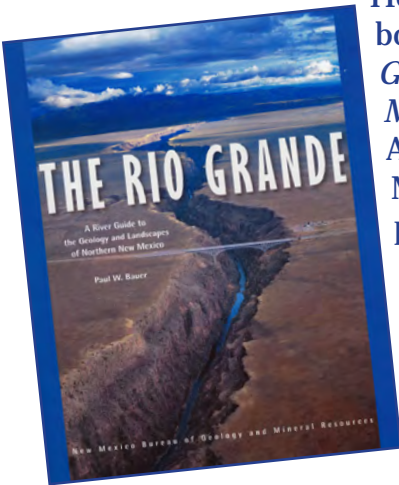


**The New Mexico Riparian Council  
is an organization dedicated to  
“the continued survival, maintenance  
and enhancement of riparian systems  
in New Mexico for further benefit  
and enjoyment of present and  
future generations.”**

**The John P. Taylor Lifetime Achievement Award**  
**Dr. Paul Bauer**

Dr. Bauer is the Principal Geologist and Associate Director for Government Outreach at the New Mexico Bureau of Geology and Mineral Resources. Paul was granted the Lifetime Achievement Award in recognition of his immense contributions to our understanding of New Mexico's surface water, groundwater, and geological resources.

He is also an award winning author, his latest book *The Rio Grande: A River Guide to the Geology and Landscapes of Northern New Mexico* won this year's National Outdoor Book Award for Best Outdoor Adventure Guide. More than just a recreation guide, the book provides information on a broad range of natural history topics and the environmental history (including a summary of water quality issues) of this important river. Paul has become a champion for New Mexico's rivers over the years. Since 1993, Bauer has taught a river geology class at the Rio Grande Rendezvous, which caters to river guides and outfitters. That class, and his regular river trips and research, have helped him develop a strong relationship with the people whose livelihood is the river.



## **Watershed Forum Announcement**

### **Dear Watershed Management and Restoration Community,**

The New Mexico Watershed Forum is a biennial event that brings together watershed groups, non-governmental organizations, contractors, Tribes and Pueblos, soil and water conservation districts, and local, state, and federal agencies interested in watershed management and protection. The Forum provides opportunities for local leadership to team up and share successes, challenges, and innovations while networking and discussing watershed issues.

Events in 2008 and 2010 were held in Albuquerque, and featured projects within a short drive of the conference venue. Feedback from participants indicated a demand for greater involvement by watershed groups, and a desire to highlight watershed work in more of New Mexico. Accordingly, we are taking the Forum on the road in 2012! The Planning Committee would like your ideas for local workshops on watershed management, planning, and restoration. Please visit [www.nmenv.state.nm.us/swqb/wps/2012WatershedForum](http://www.nmenv.state.nm.us/swqb/wps/2012WatershedForum) for more information and to download a workshop application form.

Sincerely,

### ***The 2012 NM Watershed Forum Planning Committee***

Julie Bain, Santa Fe National Forest  
Michael Bain, Twin Willows Ranch  
Hilary Brinegar, NM Dept. of Agriculture  
Abe Franklin, NM Environment Dept.

Jeremy Kruger, Bureau of Land Management  
Susan Rich, NM Forestry Division  
Jim Wanstall, NM Dept. of Agriculture  
Joe Zebrowski, NM Forest and Watershed Restoration Institute

## A Design for Arroyo Wall Stabilization with Concurrent Development of Riparian/Wetland Sloughs

By Dave Mattern, Bureau of Land Management Hydrologist

### Background

Several 35-foot-high arroyo walls along bends of the Rio Puerco near Cabezón, NM were identified for stabilization efforts because they had continued to cut outward with no sign of stopping. They produced large sediment inputs to the river through mass failures (Figure 1) and continued to erode private and public land adjacent to the town of Cabezón. Seasonal patterns had developed where the accumulated fallen soil and bank materials would be washed away by the Rio Puerco's considerable intermittent or ephemeral discharges. The flows further undercut the toes of the banks, setting the stage for subsequent bank collapses, the channel-clearing flows, and so on. Left unstabilized, one of the bends was about to form a meander cutoff that would have by-passed about 2000 feet of river channel and its floodplain.



Figure 1: Continually eroding arroyo walls along a bend of the Rio Puerco near Cabezón, NM.

### Design

The primary design objective was to stop the retreat of the arroyo walls. To achieve this, the river was re-directed by dredging a new channel through the existing point bar while maintaining a meander of similar geometry, but shifting the radius point of the bend (Figure 2). With this design, a second objective was made possible: creating a riparian/wetland slough in the abandoned channel at the foot of the arroyo wall. Because the dredged material is divided and placed at the ends of the abandoned channel bend - forming two earthfill plugs with a surface elevation at floodplain level - the slough will be flooded when the river exceeds bankfull stage. With vegetation established in the abandoned channel (sloughs) and on the plugs, the design actually results in a net increase in the area of vegetated floodplain within the arroyo walls due to the slightly shorter length of the new channel.

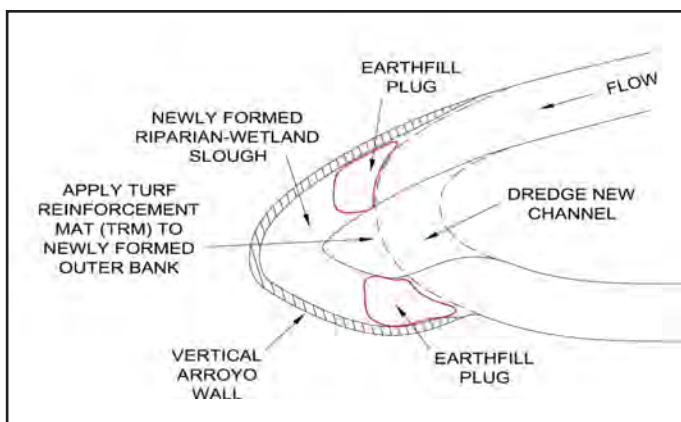


Figure 2: Design for Arroyo Wall Stabilization and Development of Riparian/Wetland Sloughs.

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### Results

The project was completed in March 2009 with the application of turf reinforcement mat (TRM) on the outside banks of three newly-excavated stream channels and earthfill plugs (Figure 3). Re-positioning the active channel away from the foot of the arroyo wall has resulted in eliminating the undercutting of the arroyo walls and the mass failures into the river. After three growing seasons, the native willow rootstock has colonized the TRM and has induced sediment deposition (Figure 4). The sloughs are colonizing with willows (Figure 5), and in two of the sloughs where the water table is highest, cattails have appeared. No planting was required due to the root sprouting of the native willow community in this reach of the river. Over the long term, the slough areas may or may not fill with overbank flood deposits to form vegetated floodplain benches.



*Figure 3: Application of turf reinforcement mat (TRM) on a new channel bank.*



*Figure 4: Willow and herbaceous growth through the TRM near the end of the third growing season*



*Figure 5: Typical willow response in the riparian/wetland slough (the abandoned channel bed).*

### Funding and Partners

The project was funded by an EPA grant obtained by the Rio Puerco Management Committee in 2003. The grant program encouraged different approaches for watershed stabilization and water quality improvement. In response, the grant application specified an objective for stabilizing a number of bends along the Rio Puerco near Cabezón, New Mexico. The project was subsequently designed and constructed by the Bureau of Land Management with assistance from Michael Coleman of NMED's Surface Water Quality Bureau. Project cooperators included several private landowners near Cabezón whose property encompassed the three project work sites treated with this design. The project required a Clean Water Act Section 404 Individual Permit from the U.S. Army Corps of Engineers.

For further information, please contact project manager David Mattern at the Bureau of Land Management, (505) 761-8776.

# GET INVOLVED!

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

**February 23, 2012** - New Mexico Inter-Agency Wetlands Roundtable meeting with topics on Regulations, Restoration and Partnerships, Monitoring and Assessment, and Wetlands Water Quality Standards. The meeting will be from 9 am to 4 pm in the Rio Grande Room at the Tony Anaya Building located at 2550 Cerrillos Road, Santa Fe, NM. For more information, contact Shelly Barnes ([michelle.barnes@state.nm.us](mailto:michelle.barnes@state.nm.us)).

**March 1** - NMED Surface Water Quality Bureau public meeting for a water quality survey being planned for the Chama River Watershed in 2012. 6:30-8:00 pm at the Rio Arriba County Rural Events Center, 122 State Route 554, on the highway to El Rito, between Abiquiu and El Rito.

**March 1** - New Mexico Wetlands NGO Roundtable meeting will be from 9 am to 4 pm at the New Mexico State Library (Corner of Cerrillos and Camino Carlos Rey) in Room 2027, in Santa Fe, NM. This meeting is jointly sponsored by the New Mexico Environment Department Surface Water Quality Bureau Wetlands Program, and the New Mexico Riparian Council. This meeting is for non-governmental organizations and personnel that are involved in wetlands restoration, protection, monitoring and management, and for sharing information, project reports and successes, updates and for networking. For more information, contact Karen Menetrey ([karen.menetrey@state.nm.us](mailto:karen.menetrey@state.nm.us)).

**March 17** - Cedro Creek Volunteer Restoration Event. Albuquerque Wildlife Federation. For more details, see <http://abq.nmwildlife.org/>.

**March 20** - 319 RFP Public Meeting. State Records & Archives Center, 2nd Floor Meeting Rooms, 1205 Camino Carlos Rey, Santa Fe, NM. 2:00–4:00 pm.

**March 21** - 319 RFP Public Meeting (4:00 – 5:30) followed by a public meeting on a water quality survey (5:30 – 7:00) being planned in the Sacramento Mountains in 2012. Council Chambers, Ruidoso Village Hall, 313 Cree Meadows Drive, Ruidoso, NM. 4:00–7:00 pm.

**March 26** - 319 RFP Public Meeting. Farmington Civic Center, Meeting Room C, 200 W. Arrington, Farmington, NM. 4:00–6:00 pm.

**March 27-29** - 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).

**March 29-31** - Arizona Riparian Council’s 25th Annual Meeting. “People and the Upper Gila River Riparian Ecosystem: Past, Present, and Future” Eastern Arizona College in Thatcher, Arizona. Please visit <http://azriparian.org> for more information.

**March 31** - Erosion and creek restoration workshop on Mesteño Draw, Mesteño Draw Ranch, Mountainair. For more details, see <http://quiviracoalition.org>.

**April 14-15** - West Fork Gila River Volunteer Restoration Weekend. New Mexico Wilderness Alliance. For more details, see [www.nmwild.org/event/heart-bar-ranch-west-fork-of-the-gila-river/](http://www.nmwild.org/event/heart-bar-ranch-west-fork-of-the-gila-river/).

**April 20-22** - Cebolla Canyon Volunteer Restoration Weekend. Albuquerque Wildlife Federation. For more details, see <http://abq.nmwildlife.org/>.

**May 4-6** - Red Canyon Reserve Workshop. Quivira Coalition. Socorro County, NM. For more details, see <http://quiviracoalition.org>.

**May 18-20** - Cebolla Canyon Volunteer Restoration Weekend. Albuquerque Wildlife Federation. For more details, see <http://abq.nmwildlife.org/>.

If you have an event that you would like posted, please email [matthew.schultz@state.nm.us](mailto:matthew.schultz@state.nm.us)