

# CLEARING THE WATERS

## NEWSLETTER

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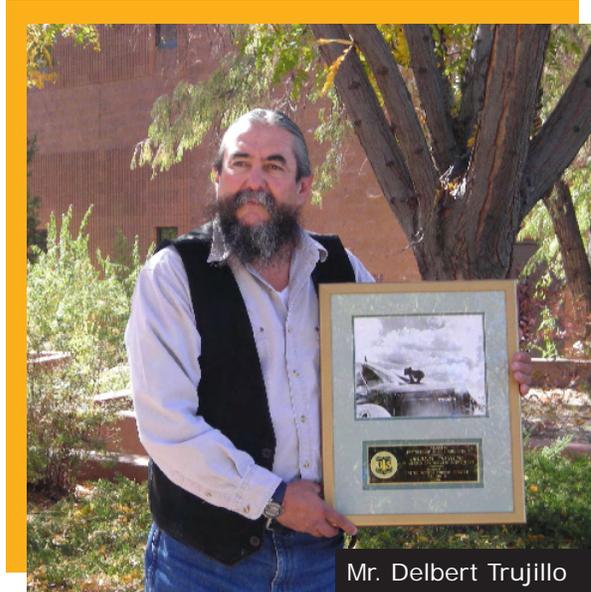
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## Outstanding Partnerships, Outstanding People



Mr. Delbert Trujillo

Mr. Delbert Trujillo of the NMED Surface Water Quality Bureau's Watershed Protection Section received the "Outstanding Partnership Accomplishments" award from the US Forest Service Region 3 Office. The award was presented on September 17, 2007 at the Marriott Hotel in Albuquerque and recognizes those individuals who have created outstanding partnerships with the U.S Forest Service.

Mr. Trujillo's work with the Santa Fe and Carson National Forests (NF) has resulted in improvements to water

quality and riparian environments with an emphasis on range management improvement. He states that "the key to this accomplishment is OUTREACH, OUTREACH, OUTREACH. I try to emphasize that outreach and education are the two leading factors that will make a project a successful one."

Many projects Mr. Trujillo has worked on in partnership with the Carson and Santa Fe NFs include the implementation of Best Management Practices (BMPs). A BMP is a practice or combination of practices chosen as the most effective, economical, and practical means of preventing or reducing the amount of pollution generated by non-point sources for the improvement of local water quality.

The following BMPs have been implemented on both the Santa Fe and Carson NFs in an effort to reduce or eliminate surface water pollutants, such as sediment, from entering perennial stream flows on NF Land.

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NMED SURFACE WATER QUALITY BUREAU'S  
WATERSHED PROTECTION SECTION

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

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*PARTNERSHIPS, continued from page 1...*



## Trick Tanks

Construction of alternative water structures on Santa Fe and Carson NFs. Trick Tanks are containment structures that gather water through an inverted roof system.



## Earthen Dams

Earthen Dams constructed with clay soils have long been a part of the National Forest landscape. Clay soil is less susceptible to groundwater leaching and helps improve the habitat for various types of animals in the area.

## Spring Rehabilitation



Spring rehabilitation and improvement is essential so that water quality and seepage can be maintained. During drought conditions, trampling from heavy use by ungulates in the area can often cause the spring to be plugged. To better protect these springs, a fence was constructed around them to exclude ungulates from direct access to the springs. Water was piped with gravitational flow to a drinker / trough system located outside the perimeter fence to provide an alternative water source for ungulates and other animals reliant on the stream.



## Participation

Collaborative projects involving SWQB and the USFS would not be possible without the participation of local residents. Community participation is the key to any good project and the community outreach and collaboration for these projects have been exceptional.



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## Conservation Innovation Grant Tracks Soil and Riparian Moisture

by Mike Matush, SWQB Watershed Protection Section

**T**he Black Range Resource Conservation and Development and Grant Soil and Water Conservation District were recently awarded a USDA Natural Resource Conservation Service Conservation Innovation Grant (CIG) through a proposal developed by the Gila Watershed Partnership. The CIG project, “Tracking Soil Moisture and Alluvial Water Response, Before and After Brush Treatment in the Burro Mountains,” will measure and quantify soil moisture penetration, hillslope movement, subsurface water, and subsequent alluvial effects in riparian areas before and after brush cover treatment on the upper slopes of a small 225-acre watershed. An untreated 30-acre tributary watershed will serve as an experimental control.

The project site, in the Burro Mountains of southwestern New Mexico, occupies an elevation of about 5000 feet. Historically, the vegetative composition of much of the Burros region was savannah grassland. Woody species like pinyon, juniper, and oak now dominate many areas, sometimes at densities triple those documented 100 years ago. These woody species successfully compete for light and water, inhibiting return of native herbaceous species. Herbaceous cover more effectively slows the rate of surface water runoff and sheet erosion than woody tree and brush species, and its loss has contributed to widespread gullying and subsequent declines in local water tables. Compared with those of woody species, the roots of native grasses and forbs also provide a better mechanism for soil water penetration, potentially enhancing its movement into groundwater storage.

A data logging rain gauge placed in the upper watershed will measure rainfall amounts and intensities. Data logging soil moisture meters will be placed within and below plant root zones in inter-spatial canopy areas as well as directly under tree canopies. Piezometers with data logging pressure transducers will be placed at the bottom of the treatment and control area slopes above and below a small gravity spring-fed riparian area to measure fluctuations in alluvial groundwater levels. Duplicate instrumentation will be placed in the control watershed. All instrumentation will record moisture data for a minimum of three years. After the minimum three year period, brush will be hand cut to reduce existing canopy percentages from an average of about 50% to approximately 5%. All slash will remain on the ground to reduce the impact of rainfall on bare ground. Measurements and evaluation of the resulting data will continue for ten years following brush treatments to measure the alluvial groundwater and vegetative responses to treatments.

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Datalogging Rain Gauge

The CIG project will test a number of hypotheses. We expect the majority of rainfall events in the Burro Mountains are minimal and therefore currently undetectable at the soil surface where interception by brush canopy and litter occurs. These events will be recorded. Of the rainfall events that do produce effective rainfall (penetration into and past the root zone), can these events be measured and tracked down the hillslope once the soil profile has reached field capacity or saturation and moves by gravity into the riparian area at the bottom of the watershed? An expected rapid and short-term increase in alluvial groundwater levels after each rainfall event will help to distinguish overland discharge from soil moisture gravity flow, which is expected to be time delayed downslope and dependent on extent and duration of soil field capacity. Real-time data collected by all of the project site instrumentation will record the movement of any “pulses” in soil moisture, subsurface flow, and alluvial water levels. Following brush and tree cover reduction, we hypothesize the increased herbaceous ground cover will eventually produce gains in alluvial storage due to greater rainfall infiltration and soil moisture retention from the increase in fibrous

root systems and subsequent increase in soil organic matter. While it is also expected the increase in grassy vegetation will utilize a substantial amount of rainfall, the project is designed to test the hypothesis that reductions in brush and tree cover will create a net increase in soil moisture. The 10-year data collection period following treatment is aimed at evaluating whether the projected increase in soil moisture eventually results in greater alluvial water storage and improved channel baseflow.



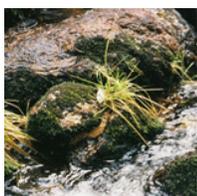
Soil Moisture Meter



Water Level Logger Transducer

Instrumentation includes a HOBO Rain Gauge with event logger to record rainfall time, rate and duration. A minimum of six HOBO EC5 Soil Moisture Meters will be installed; these measure the dielectric constant in the soil, which is largely a function of soil water amount, producing a period measurement of +/- 2% error in volumetric water content. Solinst Water Level Logger ventless pressure transducers in three piezometers will record real time fluctuations in alluvial water levels and a Solinst Barologger installed at the site enables corrections for variation in barometric pressure. ~

For more information about the project, contact Mike Matush at: [mike.matush@state.nm.us](mailto:mike.matush@state.nm.us) or 505-827-0505



# River Ecosystem Restoration Initiative

by Karen Menetry - Surface Water Quality Bureau

The River Ecosystem Restoration Initiative (RERI) is an opportunity to protect and restore river systems across the state. This initiative is part of Governor Richardson's "Year of Water" legislative agenda, and is designed to sustain, re-establish and rehabilitate the integrity and understanding of New Mexico's river ecosystems through the enhancement of physical, chemical and biological characteristics. The initiative was funded in the amount of \$2.35 million through a capital outlay bill during the FY2007 legislative session.

NMED issued a Request for Proposals (RFP) in May 2007. The RFP requested proposals for projects that restore instream ecosystem function and watershed health to major river basins. The RFP provided the following examples of activities that could be funded: physical habitat restoration within a stream; enhancement of environmental flow; improvement of riparian vegetative cover for the purpose of river restoration; reduction of pollutants to rivers; promoting the hydrologic interaction between the river channel and floodplain including bank lowering; and restoring dynamic channel processes such as accretion on new banks, bar building, channel widening, and channel sinuosity.

Projects were selected from proposals submitted by entities across the state. NMED led a technical and scientific review process that also included representatives from the New Mexico Departments of Agriculture, Energy, Minerals and Natural Resources, and Game and Fish as well as the Office of the State Engineer. An emphasis was given to funding of physical projects with the ability to show tangible results and water quality improvements. The \$2.35 million will fund 11 projects across the state. Contracts are for a four year cycle from state fiscal year FY2008 through FY2011.

Project Name	Contractor	Location	Final Award Amount	Brief Project Summary
Multi-Basin Riverine Restoration in New Mexico	The Quivira Coalition, Courtney White	Comanche & Gold Creeks, Mora River	\$157,900	Improve native trout habitat, encourage riparian vegetation, increase channel sinuosity and restore floodplains in Comanche and Gold Creeks (Valle Vidal) & the Mora River.
Pecos River Restoration Phase II: Repairing Flood Plain Connectivity	US Fish and Wildlife, Paul Tashjian	Pecos River	\$518,500	Improve fish and bird habitat and restore the natural floodplain of the Pecos River at Bitter Lake Wildlife Refuge near Roswell.
Cloverdale Creek and Cienega Restoration Project	Sky Island Alliance, Trevor Hare	Cloverdale Creek	\$227,788	Removal of levees and restoration of historic cienega by diverting water out of spillway and back onto the cienega.
Aquatic Ecosystem Restoration at Bottomless Lakes State Park	State Parks Division, NM EM-NRD, David Simon	Bottomless Lakes	\$416,000	Restoration of the Lea Lake Marsh area by increasing hydrologic diversity, planting of native species, and removal of debris. Wildlife observation areas will be constructed.
Lower Santa Clara Creek Watershed Restoration Project	Santa Clara Pueblo, Jeff Ham	Santa Clara Creek	\$203,000	Install exclosures and provide livestock watering tanks outside or riparian areas, plant native vegetation and restore natural stream meanders

*continued on page 6*

Project Name	Contractor	Location	Final Award Amount	Brief Project Summary
Increasing Riparian and Wetland Health in the Galisteo Creek Watershed	Earthworks Institute, Jan Willem Jansens	Galisteo Creek	\$189,594	Construction of rock filter dams and other channel structures to increase capacity for stormwater and snowmelt infiltration, planting native vegetation, headcut stabilization.
Rio San Jose Ecosystem Restoration: Enhancement of Instream Flows and Biological Diversity	Pueblo of Laguna, Chuck Schultz	Rio San Jose	\$237,200	Enhance native vegetation, restore springs, create wildlife/livestock drinkers to reduce livestock spring impacts, enhance willow flycatcher and Pecos Sunflower habitat.
Rio Puerco Riparian Restoration Project	Forest Guardians, John Horning	Rio Puerco south of Cuba, NM	\$100,000	Establish a native seed source via riparian plantings, increase channel sinuosity and removal of jetty jacks.
Ecological Restoration of the Rio de Los Pinos	San Miguel Ecological Group, Marcel Reynolds	Rio de Los Pinos	\$100,000	Construct channel restoration and grade-control structures to reduce erosion of stream banks and improve stream habitat. Plant native vegetation.
Restoration of the Canalized Reach of the Lower Rio Grande	Elephant Butte Irrigation District, Gary Esslinger	Lower Rio Grande	\$100,000	Establish riparian habitat in EBID drain, widen channel, construct structures to promote diverse flow conditions.
Gila River Floodplain Restoration	The Nature Conservancy, Robert Findling	Upper Gila	\$100,000	Restore and permanently conserve Gila River floodplain through land purchase, construction of exclosures.
			Total \$2,349,982	

**For Additional information about the RERI, please contact:** Karen Menetry, Surface Water Quality Bureau River Ecosystem Restoration Initiative; [karen.menetry@state.nm.us](mailto:karen.menetry@state.nm.us); (505) 827-0194 ~

A Model Restoration Project Along Santa Fe River



BEFORE (1999)



AFTER (2004)



Rio Grande Bosque, Photo by Anne P. Davis

## *Grant Funding Available for Watersheds*

The watershed protection section of the Surface Water Quality Bureau will be releasing it's annual Request For Proposals (RFP) for the  
**Clean Water Act Section 319(h) grant process**

319(h) grants are designed to provide funding for the formation of watershed groups and on the ground watershed / stream restoration projects. The program encourages local involvement with thte restoration and protection of New Mexico's surface water resources. Two types of grants are available: Watershed Group Formation and On-the-Ground Water Quality Improvement Projects.

**319(h) Grant RFP will be released in early December**

RFP release and due dates have not yet been determined but please check the SWQB website or call for information.

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

505-827-0187



## ANNOUNCEMENTS



### **1/17-19/2008 Quivira Coalition 7th Annual Conference**

Building Resilience: Creating Hope in an Age of Consequences, Marriott Pyramid, Albuquerque, New Mexico.  
[www.quiviracoalition.org](http://www.quiviracoalition.org) or 505.820.2544

### **Early December 2007 CWA 319(h) Grant Funding for Watershed Groups and Restoration Projects**

**\$\$\$ Request for Proposals for the Federal Clean Water Act Section 319(h) grants** will be available in early December (as of this printing there is not an exact date set). Please check the Surface Water Quality Bureau's website [www.nmenv.state.nm.us/swqb](http://www.nmenv.state.nm.us/swqb) or call 505-827-0187 for information about release and due dates for the proposals.



*Happy Holidays!*



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