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EPA Awards \$700,000 to Work in the Rio Puerco Watershed

By Julie Arvidson and Michael Coleman

The Rio Puerco delivers the largest amount of excess sediment into the Middle Rio Grande of all the rivers that contribute to it. For many years New Mexico has attempted to deal with the problem comprehensively, but have only come up with funds to do a few scattered projects within the Rio Puerco Watershed. In 2002, the opportunity appeared for a project that could be far-reaching and perhaps protect the quality of water in the Rio Grande. The Environmental Protection Agency (EPA) announced a new program, called the Watershed Initiative, to encourage successful community-based approaches to restore, preserve, and protect the nation's waters. This grant program provides needed resources to watershed organizations whose restoration plans are developed, and who are able to achieve quick, yet tangible results.

After receiving several proposals for projects in New Mexico's watersheds, Governor Richardson and New Mexico's Tribal leaders nominated the Rio Puerco Management Committee's (RPMC) proposal to the EPA. Only 20 out of 170 nominated proposals were selected by EPA, including the Rio Puerco Watershed Restoration Initiative.

The RPMC was formed in 1997 out of the Rio Puerco Watershed Act, a congressionally mandated collaborative approach to tackle the many environmental problems of the Rio Puerco Watershed. The RPMC consists of local, state, and federal agencies; Tribal governments; Soil and Water Conservation Districts; and stakeholders residing or working in the watershed.

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The Rio Puerco begins at the Continental Divide near Cuba and flows south, converging with the Rio Grande south of Belen at Bernardo. The high sediment loads that flow into the Rio Grande from the Rio Puerco create problems for the aquatic organisms in the Rio Grande. Excessive sediment in a river can hinder the macroinvertebrate life cycle by clogging the streambed where larvae develop. Extreme amounts of sediment can also block fish gills, obstructing their breathing.

The Rio Puerco's history of poor grazing and land management practices, combined with arid conditions, has led to heavy erosion in the area. In the Clean Water Act section 303(d) list of New Mexico's impaired waters, the Rio Puerco is recorded as experiencing exceedances of temperature, stream bottom deposits, plant nutrients, metals, turbidity, dissolved oxygen, and pH.

The RPMC has been addressing the high level of sediment in the Rio Puerco with current stream rehabilitation and grazing management efforts. Funding from EPA's Watershed Initiative grant will enable the RPMC to go forward with more projects that directly address sediment control. For the Rio Puerco Watershed Restoration Initiative, the focus is on the Watershed's Upper Main Stem and Torreon Wash sub-basins. Upland and in-channel stream restoration, stabilizing channel flow and topography, implementing livestock grazing management practices, and programs to educate the public will be implemented during this initiative. Cooperators for the projects include members of the RPMC, the New Mexico Environment Department Surface Water Quality Bureau (SWQB), New Mexico Highway and Transportation Department, Pueblo of Jemez, Navajo Nation, New Mexico Bureau of Geology and Mineral Resources, local landowners, and allotment permittees. The Watershed Protection Section of the SWQB will administer the Watershed Initiative grant for the RPMC in a similar manner as the Clean Water Act section

319(h) grants that the Section currently implements on a statewide basis.

The Rio Puerco Watershed Restoration Initiative will address all three of the RPMC's primary goals with these projects: sediment reduction; vegetation and habitat improvement; and socio-economic, cultural, and public awareness issues.

Interest in Improving Water Quality in the Rio Quemado is Sparked after Borrego Fire

By Delbert Trujillo

The Borrego Fire of 2002 encroached on the Truchas Land Grant, located on the west side of the Sangre de Cristo mountain range, just east of the village of Truchas. The fire devastated the land grant territory, already a barren region due to poor grazing practices that contributed to pollution in the Rio Quemado. The wildfire added to this pollution by causing erosion that dumped ashes and sediment into the river.

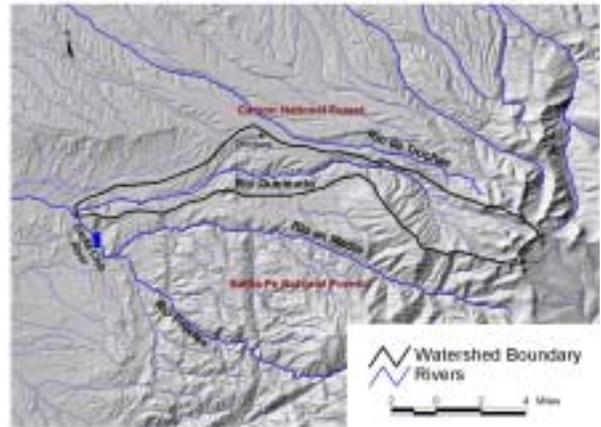
The Truchas Land Grant Board of Trustees realized the contamination in the Rio Quemado was mounting. The board members applied for and were awarded a Clean Water Act section 319(h) grant in 2003 to reduce sediment load into the river. By implementing best management practices they hope to eventually restore the Rio Quemado to its designated use of high quality coldwater fishery. The report *Water Quality and Water Pollution Control in New Mexico* lists the Rio Quemado as having possible pollutants of siltation, stream bottom deposits, and temperature. All of these pollutants can be attributed to poor grazing practices and wildfire. When livestock graze too close to or in the river they consume the riparian vegetation alongside the stream and trample banks, creating erosion. Lack of riparian vegetation can contribute to increased sediment and temperature levels in the river that can affect the quality of water for fish and other aquatic organisms.

The Truchas Land Grant will be implementing best management grazing practices

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Rio Quemado continued from page 2 and fire restoration this summer. To recover the land area to its pre-fire condition, vegetation will be planted to lower the temperature of the river and prevent erosion.

The Truchas Land Grant also will be developing a Range Management Plan for rotational grazing, a best management practice that increases the amount of vegetation in the area. The land grant area will be divided into five grazing sections. Each section will be grazed during different seasons to allow rest and growth to the areas not being grazed at the time. Salting and feeding areas will be located at isolated points throughout the region and will be rotated yearly.



More best management practices for the Rio Quemado Watershed project include:

- Implementation of trick tanks located at areas that possess plenty of forage, but are without water. This activity can reduce fire danger and riparian impact from wildlife and livestock grazing by consuming forage at non-used grassy areas and eliminating tall grass.
- Construction of earthen dams. This helps increase watering areas and reduces riparian area impact. Earthen dams act as sediment containment basins to prevent sediment from entering surface waters and as an alternative water source.
- Fencing of the five rotational grazing sections using T-posts, barbwire, and natural barriers.
- Cattle guard placement at fenced areas will provide for better access to divided pasture sections.
- Planting tree and grass seedlings at burned and denuded areas. Tree seedlings help stabilize slopes while grass seed broadcasting helps reduce erosion in bare areas. Contour felling of burned and dead trees in burned areas will help reduce and minimize gully erosion during runoff and storm events.

Spur Ranch Kicks Riparian Improvement Into Full Gallop

By Mike Matush

For many decades Centerfire Creek has been a deep, wide gully passing through the Spur Valley before emptying into the San Francisco River east of Luna, New Mexico. In 1999, the Surface Water Quality Bureau Watershed Protection Section (WPS) helped fund a project to control erosion in the Creek. The project produced a 14.5 feet tall, 115 feet wide, 162 feet long, 2700 cubic yard gradient control structure designed to slowly heal almost a century of riparian losses.

Tom and Callie Paterson and their daughters, Lindsay and Caroline, began the Spur Ranch Project (the Project), shortly after purchasing the ranch that is across the fence from where Tom grew up. According to Tom, “I watched the erosion on the Spur Ranch get worse and worse for close to 40 years. When we had the opportunity to buy the ranch, we agreed that one of our highest priorities as a family would be to try to heal the creek.” The Project’s objectives, developed by the Patersons, focused on rehabilitating Centerfire Creek but also included associated riparian management, erosion control, forest thinning and controlled burning.

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Centerfire Creek runs through the Gila National Forest. Pat Morrison, the wildlife biologist for the Quemado District, Gila National Forest, has a reputation of working successfully on the upper and middle reaches of the watershed to stop erosion. Upon hearing of Pat's successes, the Patersons phoned her. "I was happy to get the call," she said. "I looked upon this project as a way to extend the work we'd been doing for many years to the base of the watershed." At Pat's urging the participants in the Project grew almost immediately to include WPS. "(The WPS) brings expertise and the potential for section 319 funding, which is critical," Pat added.

Working together with WPS, the Natural Resource Conservation Service, and with Easterling and Associates, Project participants developed the details of the Spur Ranch Project. Specifically, they concluded that, due to the size of the watershed and storm runoff due to New Mexico's flash floods, the best control device for the site would be an in-stream, soil cement drop structure. Due to funding considerations, construction proceeded in two stages.

In Stage I, Pioneer Industries built a 6.5 feet tall, 115 feet wide soil cement, gradient control, stair-step structure at the bottom end of the Spur Ranch. Included in the construction was a standpipe at the up-stream end that is connected to a pipe that runs below the structure. Normal flow never goes over the top of the structure; it goes beneath it and is deposited into a soil-cement plunge pool before returning to the original creek level. "The engineers put in the stair steps as energy dissipating devices," said Paterson. "When a flood overwhelms the standpipe and goes over the top of the structure, the energy when it gets back to the original creek level below the structure should be no greater than it was when it went over the top."

Stage II of the Project added 8 feet on top of the Stage I structure for a total height of 14.5 feet. Overall disturbance from the structure was less than two acres and all impacted areas have been re-



Downstream view of stair steps with plunge pool.

seeded to native vegetation. One thousand willows were planted in the riparian area on the ranch.

Pat Morrison is pleased with the structure. "This Project will benefit the entire watershed," she noted. "Sediment is already being deposited upstream. When the structure has finished capturing its capacity of sediment, Centerfire Creek will be returned to near an historic level and the riparian area will be expanded from a narrow band to a broad swale."



Upstream view of draw down tower.

Tom Paterson adds, "These projects don't get finished on paper. They're not finished until they're on the ground and working. We are grateful to the many individuals and organizations who committed themselves to helping make that happen with the Spur Ranch Project."

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Grade control structures can help stabilize riparian corridors by slowing the velocity of flash floods and equally important can enhance the property value by increasing the amount of productive land. The secret to making these projects a reality is having a suitable riparian resource, tireless employees like Pat Morrison and land owners like Tom Paterson that have the ability and dedication to the long term care of the resource.

User-Friendly TMDL is Tested in the Upper Rio Chama Watershed

By Julie Arvidson

In an attempt to make total maximum daily loads (TMDL) more user-friendly, a trial watershed TMDL has been written in draft form for the Upper Rio Chama watershed with an implementation plan that is tailored to the pollution problems in that watershed.

Total maximum daily loads are planning documents for stream reaches detailing how much of an identified pollutant can enter water bodies without infringing the State's Standards for Interstate and Intrastate Surface Waters (Standards) for that particular water body. The intention is for groups to use this planning document to abate and prevent pollution in the stream reaches that were listed as impaired on the Clean Water Act (CWA) section 303(d) list. The TMDLs also contain implementation plans to assist in ensuring the water body meets the Standards.

In the past, most TMDLs had a boilerplate implementation plan that could be applied to any watershed in New Mexico because the Environmental Protection Agency (EPA) does not officially approve the implementation plan portion of a TMDL. Later, the EPA requested that groups applying for CWA section 319(h) funding develop watershed restoration action strategies (WRAS, also called "watershed management plan"), a planning document to abate nonpoint source

pollution. The new TMDL implementation plans are designed to be a starting point for development of the WRAS and provide information to guide restoration projects that groups plan to implement in the watershed.

The Upper Rio Chama Watershed TMDL document is actually many TMDLs combined in one document. Each source of pollution of each water body has a separate TMDL. Previously, one document would be written for each stream segment. The focus is now towards a document that contains TMDLs for all of the polluted water bodies in the watershed. This will enable stakeholders in the watershed to come together and focus on the root sources of pollution.

The Upper Rio Chama Watershed TMDL was written with the intent to facilitate project formation and WRAS creation for watershed groups. When watershed groups meet, they usually want to focus on the watershed as a whole and need help with ideas on how to improve the watershed, as members may not know off-hand how to abate the pollution. The pollutant-specific implementation plans allow watershed groups to begin a project sooner as they know what work they can do to abate the pollution and do not have to spend time trying to figure out what is needed to combat the pollution and where to work. The implementation plans also list all of the stakeholders in the area. Watershed groups can form quicker with this knowledge and can contact these potential partners to gain more participation.

The Draft Upper Rio Chama TMDL will be located online on the Surface Water Quality Bureau webpage at <<http://www.nmenv.state.nm.us/swqb/links.html>> on July 8th. Public comment period for the Draft Upper Rio Chama watershed TMDL begins July 15th and ends August 13th. A public meeting will be held as well at the end of July in the watershed to allow for questions regarding the TMDL.

FUTURE EVENTS

JULY

June 29-July 2, The American Water Resources Association is sponsoring an international congress called "Watershed Management for Watershed Supply Systems" in New York City. Three tracks will be addressed in this conference, science and technology; policy and management; and education and outreach. Contact Peter E. Black by phone at (315) 470-6571 or by email <pebchair@esf.edu>.

AUGUST

July 30-August 1, Water Security in the 21st Century is being sponsored by Universities Council on Water Resources, National Institutes for Water Resources, and Environmental & Water Resources Institute of the American Society of Civil Engineers in Washington, DC. The conference will address the National Research Council, "*Envisioning the Agenda for Water Resources Research in the Twenty-First Century.*" These strategies include establishing research priorities, educating future water scientists, and developing and implementing innovative water policy and management programs. For more information, log onto <<http://www.uwin.siu.edu/ucowr/cpaper/uconf2003.pdf>>.

SEPTEMBER

21-26, The Watershed Restoration Institute is an intensive six-day program developed by the Center for Watershed Protection, River Network, and several cooperating organizations designed to equip local urban watershed leaders with the skills and tools to plan, design and implement effective restoration programs in their home watersheds. The workshop will be held in Reisterstown, MD. Log onto <http://www.cwp.org/Watershed_Institute.htm> for more information.

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