Clearing the Waters Newsletter

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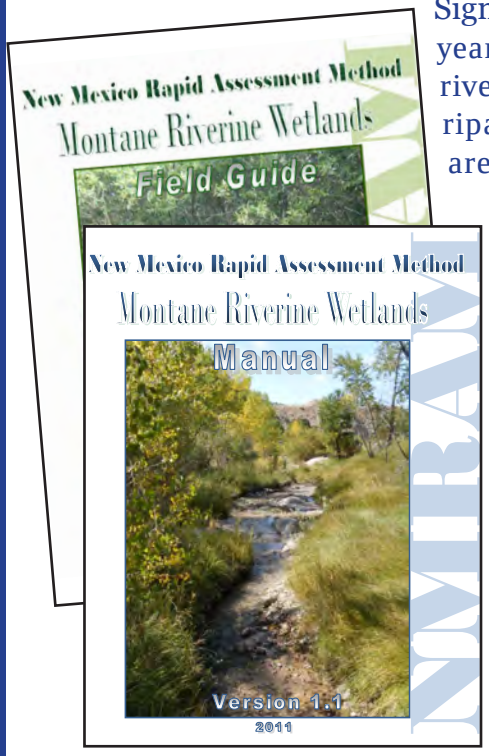
New Mexico Rapid Assessment Method for Wetlands Released

By Maryann McGraw, NMED-SWQB Wetlands Program Coordinator

Very little is known about the function or condition of wetlands in New Mexico. In response, the Wetlands Program has initiated the development and use of a rapid assessment framework to evaluate the ecological condition of riverine wetlands and their associated riparian areas throughout New Mexico. The New Mexico Rapid Assessment Method (NMRAM) was developed as part of the SWQB Wetlands Program's on-going efforts to classify, assess and monitor New Mexico wetland resources in order to promote effective management and protection. The overarching goal is to provide the necessary information to help prevent the continued loss and decline of New Mexico's scarce and important wetland resources.

The first version of the NMRAM is focused on riverine wetlands, possibly the most abundant type of wetland in New Mexico, and the most impacted. Significant time and funding is expended each year restoring and protecting New Mexico's river systems and associated wetland and riparian areas. Riverine wetlands and riparian areas are the focus of many of these projects because they provide important functions such as maintaining water quality in adjacent stream systems. Additional important functions of riverine wetlands and riparian areas include sediment filtration, flood attenuation, erosion control, aquifer recharge, maintenance of stream temperature and stream flow, nutrient transformation and cycling, hyporheic interchange, and provision of habitat and maintenance of characteristic native populations. Riverine wetlands help maintain bank stability through the extremely dense and resilient fibrous root



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systems typical of wetland plants. Riverine wetlands also provide nutrients and detritus that maintain the food chain in adjacent rivers and streams, and provide habitat for beaver and other species that maintain the ecological integrity of stream systems.

The intent of the NMRAM is to provide a cost-effective, yet consistent and meaningful tool for the assessment of wetland condition. Accordingly, it uses a select set of observable and relatively easy to measure landscape and field indicators (metrics) to express the relative condition of a particular wetland site. NMRAM metrics have been developed in the context of a "reference set" of wetlands that vary along an anthropogenic disturbance gradient. The ecological condition of a particular site is evaluated and ranked based on data from a suite of landscape, biological, and abiotic attributes that are sensitive to the gradient. The outcome is that wetlands can be compared equitably across many scales and jurisdictions, and in a variety of project contexts.

To aid in the application of the NMRAM, an assessment package was developed that includes a Manual, which provides the details on the method and underlying rationale; a Field Guide with associated worksheets to ensure efficient and accurate data collection; an NMRAM Rank Calculator in spreadsheet form to make data summarizing and reporting easier; and other supporting materials. The NMRAM for riverine wetlands employs 15 field-tested metrics, five of which can be measured at a landscape level using GIS techniques and 10 that are measured at the field site or Assessment Area (AA) as part of the field survey. These metrics represent the following attributes: 1) Landscape Context, 2) Size, 3) Biotic, and 4) Abiotic. The scores for individual metrics then can be considered together, weighted, and rolled up into a single score using the rank calculator, and representing the overall condition of a particular wetland.

In addition, stressor check lists are included in the methodology that are designed to assess the intensity of stressors that occur within the AA and buffer and provide additional understanding of the current wetland condition, but are not used in the scoring of wetland condition. Using the package, the NMRAM can be implemented efficiently with relatively straightforward training of field personnel, rapid execution of the methods, and built- in ranking and scoring. The NMRAM is designed so that an assessment from start to finish can be executed by a team of two in one half to one day depending on the complexity of the wetland.

From these assessment data, a broad range of applications are available for management and protection of wetland resources including: prioritization of wetlands and riparian areas for restoration and protection; identification and location of high-quality wetlands in need of protection; identification of suites of wetlands that are particularly impacted; focus on the causes (or stressors) that result in wetlands resources decline; provision of profile data to facilitate restoration design standards; development of restoration and mitigation performance standards; and utilization as an iterative monitoring tool for wetlands.

This first version of NMRAM was developed for the Riverine Class of wetlands and tested for a subclass that is defined as unconfined Montane Riverine Wetlands. An NMRAM for lowland riverine subclass will be developed in the Gila Watershed later this year, and eventually the NMRAM will be expanded to encompass all the major wetland subclasses of the state. You can download the NMRAM Manual and Field Guide at www.nmenv.state.nm.us/swqb/Wetlands/NMRAM. In the near future you will also be able to upload your NMRAM data and see other assessed sites at the University of New Mexico Natural Heritage New Mexico website.

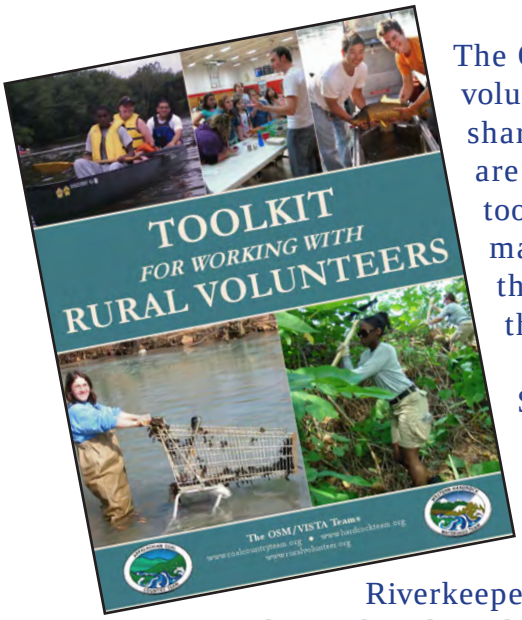
NMRAM Production Partners

New Rural Volunteer Toolkit targets rural watershed groups

By Jenna Fehr, OSM/VISTA Teams

Watershed groups in rural areas have limited resources and rely on the commitment and leadership of local volunteers to get things done—volunteers who are often driven by a deep devotion to the cause or by the simple fact that if they don't do something, no one else will.

When volunteer management is pushed to the end of a long to-do list, new volunteers are not informed of what they can do next or how they can become more involved, and consequently donate their time elsewhere. In rural communities—where a small population also means a small volunteer pool—watershed groups can't afford to lose volunteers as a result of poor management.



The OSM/VISTA Teams just completed a pioneering research project on rural volunteerism and created the *Toolkit for Working with Rural Volunteers* to share approaches to volunteer recruitment, management and retention that are successful in rural settings. More importantly, it contains one-of-a-kind tools needed by rural volunteer-based groups to build sustainable volunteer management practices within their organizations. Readers are guided through the larger process of bringing volunteers into their organization and keeping them there—all with the least amount of time, people and money.

Six organizations in Colorado and one organization in New Mexico, the Upper Pecos Watershed Association (UPWA), participated in the research behind the Toolkit. UPWA launched a Pecos Riverkeeper program to encourage volunteers to take ownership and pride in the river, and to reduce dependence on UPWA to organize biannual clean-ups. The Truchas Chapter of Trout Unlimited (TCTU) became UPWA's first Riverkeeper and signs were posted at each end of their stretch of river to inspire future Riverkeepers. UPWA hopes to recruit more Riverkeepers by pairing individual donors unable to commit to year-round upkeep with local groups and organizations willing to volunteer.

Riverkeeper sign installation

Learn more about UPWA's Riverkeeper programs and much more in the *Toolkit for Working with Rural Volunteers* at www.RuralVolunteer.org. Contact Jenna Fehr at volunteerism@coalcountryteam.org for more information.

The Western Hardrock Watershed Team, in partnership with the Office of Surface Mining (OSM) and community-led nonprofit watershed restoration groups, place, coordinate, and train AmeriCorps VISTA Volunteers who live and work in host communities to promote economic redevelopment, community engagement, and environmental stewardship. The Western Hardrock Watershed Team sponsors OSM/VISTA Volunteers in Colorado and New Mexico. For more information, visit www.hardrockteam.org.

"Best" Best Management Practices

By Chris Cudia, NMED-SWQB

As nonpoint source management programs have matured, the term Best Management Practice (BMP) seems to have become increasingly accommodative. When I first started in New Mexico's program some 18 years ago, we tended to make a clear distinction between management and mitigation. Emphasis was placed on championing management changes to reduce nonpoint source pollution (NPS). There was even a derogatory term for structural practices as "band aids." Times changed, and we stopped emphasizing the difference between BMP categories. Presently, the term is somewhat generic and routinely applied to practices that have little to do with management. The purpose of this discussion is to point out the importance of differentiating BMPs, why all BMPs are not created equal, and hopefully to illicit productive dialog amongst land managers and the restoration community about the subject. I'll preface it by saying what follows is not intended to be critical of any practice or practitioner. Rather, it's prudent to occasionally audit our path, determine if it remains true, and make adjustments to our trajectory if/when they are necessary.

Years ago a Federal colleague and I were up on a hillside overlooking some newly constructed sediment retention structures. From our vantage the structures looked insignificant given the vastness of the Gila National Forest that surrounded them. He said something like, "*That ought to fix everything.*" At which point, we both laughed. Then he got serious and stated the obvious: "*We'll never get there doing projects. Management is what has to change.*" It was readily apparent the two little dots that were our sediment retention structures were overwhelmed by the scale of the challenge.

The lesson was that nonpoint source pollution is a landscape scale issue and the only realistic way to affect substantive, lasting improvements on the landscape scale is through management. This is not to say structural elements don't have a place in our toolbox. On the contrary, there will always be a place for these tools because they work. The premise here is to suggest our challenges are rarely due to the fact we don't have enough artificial structures scattered about the landscape.

To see the shift I believe has occurred, let's first take a look at how the term Best Management Practice is defined in the 2009 New Mexico Nonpoint Source Management Plan:

> "*NPS pollution controls are typically established through implementation of Best Management Practices (BMPs) that are structural or nonstructural in nature. Structural practices include diversions, temporary sediment basins, animal waste lagoons, fencing, terraces, rock check dams and other constructed means of reducing pollutant loading to surface water and ground water. Nonstructural practices relate to resource management techniques, such as timing and rate of fertilizer or pesticide application, conservation tillage methods, livestock grazing rotation, riparian planting, upland re vegetation and other techniques.*"

The plan goes on to detail various structural and procedural practices for reducing NPS. What the plan does not do is indicate preference for one or the other. As far as the plan is concerned, all BMPs appear to be created equal.

During a watershed planning short course a couple years ago, participants were provided with a supplementary guide to BMPs. This guide split BMPs into 5 categories: Passive Management, Active Management, Mild Engineering, Moderate Engineering, and Intense Engineering. (*A Manual of Conservation Practices to Reduce Pollution Loads Generated from Nonpoint Sources*, 2004). In this context, passive BMPs refer to management/procedural practices while the other 4 categories describe increasingly intensive levels of mitigation. The guide does make a critical point when it states: "*Any strategy for reducing pollutant loads should work to eliminate the underlying causes of the pollution as well as the identified source.*" However, use of the word "passive" to describe what would be more accurately deemed proactive/adaptive management

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combined with the fact the other 80% of the document is devoted to symptomatic treatments, this critical point gets lost. That point being structural elements, more often than not, are designed to mitigate the impacts from past management decisions. In and of themselves, they do not correct the management decisions that led to the impairment. This salient point matters a great deal if our goal is a restored watershed in full support of all designated uses.

In some situations, the scale of the challenge may allow us to address substantive issues with structural means. There is no doubt we can accelerate natural healing processes. No doubt, there is a need to address many legacy issues that continue to have impacts. Opportunities remain to use structures to improve existing conditions like road drainage. However, we must also recognize that the watershed scale is often too massive to allow for comprehensive spot treatment. Yet over the past decade, symptomatic treatments have become increasingly popular. This is partly due to the fact we have become much better at it and that's a good thing.

We are incredibly fortunate to have a cadre of restoration practitioners who are adept at reading the landscape and designing solutions that work within that context. Unlike the past when many activities were designed to exert control over the system, modern practitioners recognize the most effective structural elements are those that embrace natural processes. Yes, we still occasionally see the "Fish Disneyland" approach whereby restoration design is more driven by an ideal than the system's inherent limitations and potential, but for the most part today's practitioners utilize a system's own tendencies to coax it back into balance. Not surprisingly, these partners are among the first to raise the cause/effect relationship and point out the stressors. One of the motives behind this entire discussion is support for these people and the work they do. A critical component of that support requires our community to clearly understand and articulate the difference between the cause of a problem and its symptoms. We cannot spend resources addressing symptoms while the root of the problem goes unrecognized and untreated. Otherwise we risk undermining our investment. Knowing what caused the issue in the first place and the extent to which that underlying stressor still has an impact is fundamental. Is the headcut caused by a poorly drained road? If so, by all means treat the headcut but let's also protect that investment by addressing the drainage issue.

The pressure to report short-term results could be partly responsible for the shift towards "quick fix" symptomatic treatments. Funding entities want us to produce results within predetermined time frames, and sometimes these are unreasonably short. Although we all know the long-term viability of a watershed depends in large part on how it's managed over time, we are sometimes lured into taking the short-sighted view. The danger in this is that our pursuit for short-term returns comes at the expense of the long-term gains. In the case of the aforementioned sediment retention structures, those structures would allow us to report a quick reduction in sediment loading, but they did nothing to address the source of that load: erosion. They were designed to capture sediment, and that is a perfectly acceptable outcome, but it certainly wasn't the "best" Best Management Practice. We would have done better to combine those measures with management practices to reduce soil erosion and thus eliminate the need to chase the detached soil particles from mountain to ocean. In addition, management practices that increase effective ground cover and reduce erosion pay a handsome dividend in water infiltration, groundwater recharge, and higher production.

After 23 years doing stream work in New Mexico, I've come to the conclusion that almost every un-incised stream in New Mexico is roughly 10 years of good management away from achieving something close to its potential. (Many incised streams could get there too with a combination of management and structural elements). And finally, rest, removing stressor(s) long enough to recover natural form and function, is arguably the most effective yet least utilized tool in our tool box. Rest works wonders. It may require structural elements to fully implement but for the most part it is purely a management decision.

This article was intended to foster thought and discussion. If you would like to respond to the article, please email Matt Schultz (matthew.schultz@state.nm.us). A selection of the responses will be published in the next edition.

Ciudad SWCD Tackles Urban Stormwater Pollution Problem in Albuquerque

By Mike Matush, NMED-SWQB

The Rio Grande in Albuquerque is one of New Mexico's impaired water bodies, with *E. coli* bacteria identified by the Environment Department as a pollutant of concern. The presence of coliform bacteria, of which *E. coli* is one species, is an indicator of the possible presence of other microbial pathogens that present human health concerns. The Clean Water Act 319(h) program awarded grant funding to the Ciudad Soil and Water Conservation District (SWCD) for the formation of a local watershed Advisory Group to create a watershed plan that addresses water quality impacts and provides solutions to reduce watershed pollutants. The Advisory Group, using all available studies and input from a broad range of stakeholders, proposed a multi-phased approach to reduce nonpoint source stormwater pollution. The approach consists of four goals, 1) stormwater pollution will be addressed through education, engineering and enforcement, 2) public understanding and participation in watershed wide improvement activities will be increased, 3) water quality data will be shared across jurisdictions to facilitate project implementation, 4) a venue will be created where regulations and local policies support watershed improvement initiatives. A Watershed Restoration Action Strategy (WRAS) encompassing these issues was completed in 2008.

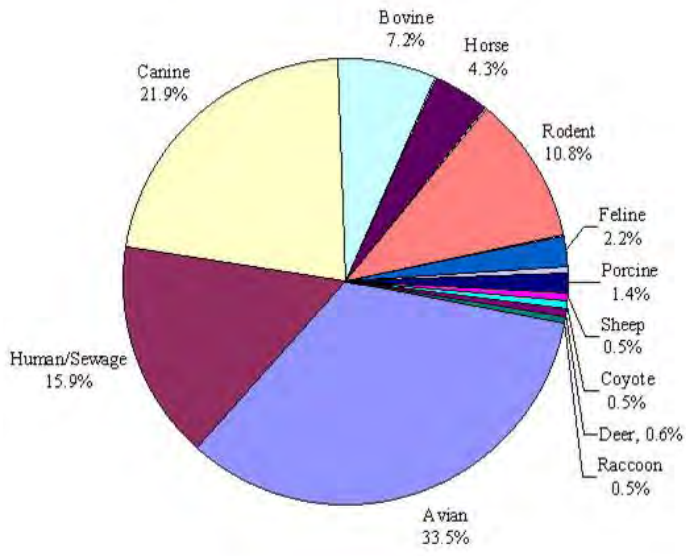

Figure 1: Sources of Fecal Coliform in the Middle Rio Grande-Albuquerque Watershed

The WRAS summarized the findings of two bacterial source tracking studies completed in the Albuquerque reach of the Rio Grande, which identified birds (34%), domestic dogs (22%) and human beings (16%) as the three primary sources of coliform bacteria discharges to the river. Land use categories highlighted the role of impervious urban surfaces and related increased runoff in the transmission of coliform bacteria into the Rio Grande especially from certain "hotspot" subwatersheds.

The Bernalillo County Public Works Division, in cooperation with the United States Geological Survey, has monitored storm water from each of its four stormwater pump stations for several contaminants, including *E. coli* bacteria. During storm events, bacteria concentrations in stormwater discharged from these pump stations have commonly exceeded the water quality standard set by the New Mexico Water Quality Control Commission in 2007. However, one county pump station showed 60% to 80% lower bacteria levels in stormwater compared to the other pump stations. Notably, this pump station includes stormwater best management practices (BMPs) such as vegetated swales, engineered clarifiers and artificial wetlands that appear to have reduced bacterial discharges.

The Bernalillo County Public Works Division has recently partnered with the Ciudad SWCD to construct additional bacteria reducing strategies identified in the WRAS. Toward that end, the county used 319(h) grant funds provided by Ciudad SWCD to retain an engineering consultant who evaluated arid-climate BMPs applicable to county stormwater pump stations. The consultant's final report was completed in November

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2011, and the county is planning for construction of the BMP most highly recommended in the report, namely longer retention time in vegetated swales in the conveyance channels.

Example of a vegetated swale. Photo courtesy of Caltrans.

In addtion, Ciudad SWCD has hired a public information consultant to develop three separate brochures on responsible septic management for septic haulers, homeowners and real estate/title companies in the East Mountains of Albuquerque. These brochures are being distributed to businesses and cooperators during all outreach events. Electronic versions of these brochures are available to the public.

In response to recommendations by the National Research Council regarding the national stormwater regulatory program, EPA Headquarters in 2010 selected the Middle Rio Grande as one of three locations where NPDES watershed-based stormwater permitting will be piloted. The other two locations are the Ramsey Washington Watershed District in Minnesota, and the Milwaukee Metro Watershed in Wisconsin. The Middle Rio Grande will be the nation's arid example in this effort. Representatives of 20 local jurisdictions that will be covered by the permit have met over two years to develop an approach to the watershed-based permit, and Ciudad SWCD has played a supportive role to those negotiations. EPA requested a significant planning effort by the local jurisdictions, but was unable to provide any funding. Ciudad SWCD has acquired two CWA 604(b) grants totaling $22,600 to support the local planning effort by hiring a professional meeting facilitator and a graduate student who will help the jurisdictions reach consensus on equitable permit compliance cost sharing based on potential pollution impact.

More information on the Ciudad Soil and Water Conservation District can be found at www.ciudadswcd.org. Please contact the Ciudad Soil and Water Conservation District for questions or comments at 505-761-5448.

Sarah Holcomb, NMED Industrial Team Leader, assists with the watershed-based stormwater permit pilot

GET INVOLVED!

June 14-16 - Fifth Annual Celebrando las Acequias "Ingenious Landscapes: Indigenous Infrastructures and Sustainable Design for Drylands." For more information, see www.lasacequias.org/news/2012celebrando/.

June 15-17 – Rio de las Vacas Volunteer Restoration Weekend. Albuquerque Wildlife Federation. For more details, see http://abq.nmwildlife.org/.

July 14 – NM Trout. Rio Cebolla Conservation Project. For more details, see http://newmexicotrout.org/archives/1626

July 16-18 - Consortium of Universities for the Advancement of Hydrologic Science Inc. (CUAHSI) Third Biennial Science Meeting – "Fusing Science and Solutions"- Boulder, CO www.cuahsi.org

July 17-19 - Universities Council on Water Resources. 2012 Conference "Managing Water, Energy, & Food in an Uncertain World" Santa Fe, NM. For more information, see www.ucowr.org

July 20-22 – Valles Caldera Volunteer Restoration Weekend. Albuquerque Wildlife Federation. For more details, see http://abq.nmwildlife.org/.

August 10-13 (tentative) - Quivira Coalition. Annual Comanche Creek Valle Vidal Volunteer Restoration Weekend. For more information, see www.quiviracoalition.org.

August 17-19 – Valles Caldera Volunteer Restoration Weekend. Albuquerque Wildlife Federation. For more details, see http://abq.nmwildlife.org/.

August 28 - 57th Annual New Mexico Water Conference. "Hard Choices: Adapting Policy and Management to Water Scarcity." Hosted by Senator Tom Udall and NMSU President Barbara Couture. Las Cruces Convention Center. http://wrri.nmsu.edu/

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