From Mountaintop to River Bottom: Restoring New Mexico's Watersheds

Watercolor by Suzanne Otter

FORUM PROCEEDINGS

SEPTEMBER 30 - PLENARY AND OCTOBER 1 – WORKSHOP NOTES

2008 NEW MEXICO WATERSHED FORUM
UPTOWN MARRIOTT HOTEL, ALBUQUERQUE, NEW MEXICO

SEPTEMBER 30: PLENARY SESSION
BUILDING ALLIANCES ACROSS BOUNDARIES

Collaboration Across Boundaries: State Agencies and Citizen Groups

Ron Curry – Secretary, New Mexico Environment Department
Reese Fullerton – Deputy Secretary, New Mexico Department of Energy, Minerals and Natural Resources
Dr. Bruce Thompson – Director, New Mexico Department of Game & Fish
Miguel Flores – Director, Water Quality Protection Division, US Environmental Protection Agency Region 6
Dr. I Miley Gonzalez – Director/Secretary, Department of Agriculture for the State of New Mexico
John D'Antonio Jr., P.E. – New Mexico State Engineer, Secretary, Interstate Stream Commission

Watershed restoration cuts across agency and political boundaries. An array of agencies and citizen groups work on watershed restoration across New Mexico. Collaboration on watershed restoration between different agencies, and between agencies and citizen groups is important for sharing information, techniques and resources. This panel of Agency Leaders will discuss collaborations they are involved in, and opportunities for how collaboration can be increased to address watershed restoration across the state.

Session Summary:

Ron Curry: Cooperation between agencies has been excellent under the Richardson administration. It is important that the effort continues long after the current administration ends. Over the past two years, there have been 28 different projects totaling around $5 million dollars. It is important that others (WTB and legislature) understand that monies spent on improving quality of water (surface and subsurface) must be spent on ecosystem health, not just infrastructure.

Reese Fullerton: New Mexico Department of Energy, Minerals and Natural Resources takes a leadership role in a lot of different committees; time up front saves a lot of time down the road when connections are needed. Work being done includes the Forest Legacy project (saving hundreds of thousands of endangered acres across NM), a CWA/FWHO project that was awarded Environmental Protection Agency (EPA) funding, and the work at Candy Kitchen, to name a few. Private, state, and local associations working to extend on older work

Dr. Bruce Thompson: Healthy watersheds are related to healthy wildlife populations; 80% of all sensitive species in New Mexico depend on riparian habitat, and 90% of all riparian habitat has been lost. We have to put conservation management in context – look toward ecological, social context that should advise what we do. The Comprehensive Wildlife Conservation Strategy for New Mexico – was prepared as part of State Wildlife Grants – (State Wildlife Action Plan) – every state and 6 territories have one of these strategies. These strategies are not necessarily connected on a landscape (even a watershed) scale. The Department of Game and Fish was primary agency lead on CWCS.

Miguel Flores: Tribes and respect for cultural differences are important in this work. There is a shared vision for the restoration of impaired water bodies on a watershed basis. Many water bodies are still impaired due to non-point sources of pollution. Will do future work with the Natural Resources Conservation Service and Soil and Water Conservation Districts, and wants to get EQIP funds focused on priority watersheds.

JW : Whether it is historic farming or modern producers, it is important to remember these folks as the work they do has direct effects on water – especially here in NM where they generally farm right on floodplains.

John D'Antonio Jr., P.E.: The Water Cabinet puts the money with the people doing the work. It is important in the face of any climate change to protect our water. The State Water Plan was completed with 29 public meetings in 240 communities – will need new input after 5 years with the three sister agencies. for example: water demand calculations – connection between water and land management – emphasis on ecosystem and habitat restoration – allows for buying water rights from the state to improve habitat for endangered fishes. All models show less snow-pack in the southwest – we can expect lower water supplies in the future. One way to balance that is through having healthier watersheds producing higher quality water. A Non-native Phreatophyte Plan – need baseline data, more follow-up to justify dollars spent.

Question and Answer Session:

Question: Will Silverton – (Worked with ISC for a period of time on the Water Plan) – How do we find and utilize a common language?

Answer: John D'Antonio**:** Common language comes from Richardson's policies. Making sure our agencies are talking to be more effective and efficient in using the (potential limited) funding and leveraging with federal cost-share programs. (Bruce Thompson: It is most important to have common awareness and common respect). The Water Cabinet is in its fledgling state, but it is supposed to address this issue of common language. Formerly, water quantity was the largest issue. Now it is paired with water quality. Keep in mind that most people in NM first and foremost consider water quantity. There has been a form of language barrier that hopefully the Water Cabinet can address.

Question: David Groenfeldt - We hear very little about water supply – conservation is a huge issue that doesn't seem to be considered by the agencies in charge of making rules on water quality and quantity.

Answer: John D'Antonio**:** ISC has programs for educational programs on conservation. We are a fully appropriated state, only transfers are going on. Every permit has to e taken into account. Albuquerque's drinking water was in excess of 240 gallons per person per day 10 years ago. Now it's down to 175/person/day, but needs to drop again. We're hoping to begin a surface water project. Growing populations make this a very complex issue, how to deal with reduced ground water supplies, increasing use of surface water, impacts to endangered species. Reese Fullerton: 7/10 of a gallon of water is needed to produce a kilowatt of energy – so remember the interconnectedness between water and energy efficiency.

Question: Bill Zeedyk – We have to have all the players at the table, and the distribution and maintenance of roads (all of them, large and small) alter the flow of water across the landscape. The roads redirect it, prevent permeation, cause sedimentation, etc. We need to think about involving

NM Department of Transportation (NMDOT) and county road commissions to use more water harvesting techniques.

Answer: JW: Work is being done by the SWCD's to educate county road commissions about proper placement and orientation of roads. Miguel Flores: It is important to get more water infiltration for the health of the watershed off of the countless square acres of impervious surfaces in New Mexico. It's not just about getting it straight to the stream.

Restoring New Mexico's Watersheds from Mountaintop to River Bottom

Susan Rich – Watershed Coordinator, Forest and Watershed Health Office, New Mexico Energy, Minerals & Natural Resources Department, Forestry Division

New Mexico is two years into implementing the State Forest and Watershed Health Plan, which provides a framework for restoring the health of the state's forests and watersheds through a collaborative, landscape-scale approach. The Plan is intended to transform the way ecological restoration is accomplished by strengthening on-the-ground efforts, eliminating unnecessary barriers to doing this kind of work and, in the end, realizing greater impact for every dollar invested. The Forest and Watershed Health Office has implemented action items ranging from establishing a formal coordinating group for agencies engaged in restoration work to providing technical assistance to community organizations and co-hosting this Forum. Those undertakings combine with activities of Forestry's state and district offices and other agencies and organizations like pieces of a jigsaw puzzle. Put together in the right way, they collectively contribute to restoring New Mexico's watersheds from mountain top to river bottom.

Session Summary:
Vision of the Forest and Watershed Health Plan - There were 20 recommendations, but implementation was tricky – needed to turn those into Action Items. Susan called a Summit meeting to get these Action Items, including inter-jurisdictional coordination. A Coordinating Group was formed – 16 people who are high enough to have direct access to the decision makers, but still in touch with the situation on the ground. Their job is to inform the Government Impediments Task Team. There is a NEPA for Novices in Albuquerque October 28.

Public Outreach and Education are also included, such as the Know Your Watershed Campaign, Watershed Sign Project, Envirothon, nmwatersheds.org, etc.

Local Collaboration work being done by the Forest and Watershed Health Office staff: CWPP provides implementation, prescriptions for thinning projects, inspecting projects, and helping run Envirothon. Please remember – this is a forum – we aren't supposed to be mere talking heads telling you what to do, it's meant to be conversational and open talk between. David Hogge's vision is being carried out here at this forum. He helped secure most of the funding for this.

Forest Restoration and Water Savings: Myth or Reality?

Ken Smith- Director, New Mexico Forest and Watershed Restoration Institute

Trees are able to draw considerable amounts of moisture from soil, depending on their size, age, health, and location. In the field, we are frequently asked if the removal of trees will result in an increase in surface groundwater and/or stream flow. In this presentation, Ken Smith will

summarize regional studies related to tree thinning and stream flow or groundwater responses. Recent New Mexico-based studies examining this topic will be highlighted.

Session Summary:
The NM Forest and Watershed Restoration Institute is part of three institutes that form the Southwest Forest Restoration Institutes. See website for details on 22 projects underway.

Restoration and water savings are site specific, with complex variables. Soil-tree-atmosphere: mature trees transpire 3-300 gallons per day, most are actually around 8-40, mesquite: 200gal/acre/year. Bosch and Hewlett in 1982 – reviewed 94 catchments around the world and found a 40mm improvement per 10% canopy cover decrease in pine and eucalyptus/

RMRS – many results – most benefit where precip. >16inches, increase from PiPo clearcuts, pinon-juniper shows little increase; most studies only on <500 acre watersheds.

Regional Studies done in Colorado at higher elevations show a significant effect on spring peak flows (due to decrease in sublimation and decrease in conifer stems). Juniper studies were done in Texas.

New Mexico State University (NMSU) – EPSCoR – Dense mixed native/non-native support greatest evirotranspiration rates; Riparian forests of ONE-species have lower evirotranspiration. Water transpiration drops when vegetation is removed

Bosque Ecosystem Monitoring Program (BEMP) – Kim Eichhorst – four years after clearing, groundwater levels continue to decline in some Albuquerque sites, in others there has been no real change. In Estancia Basin the SWCA has set up plots where thinning will occur in pinon-juniper and ponderosa pine forests, waiting for thinning to see results. In the Santa Fe Watershed a lot of thinning has occurred. Have seen an increase in mean daily flows and no change in turbidity. They cannot extrapolate their findings from two paired watersheds only 400 acres each to the rest of the watershed. At Coleman Ranch – thinning planned for next year; pre-treatment monitoring still occurring. Personal experiences should not be ignored; Hollis Fochs – increased soil moisture after juniper has been removed.

In summary, there is ample evidence in higher elevation forests that thinning affects stream flow and water yield for a period of time, then vegetation responds to increased growing space and nutrient availability. As for pinon-juniper clearing affecting water recharge? The jury is still out. In Texas, where juniper or any other deep rooting species that accesses groundwater <70-80 feet deep is on site, removal will change groundwater levels.

Tribal Watershed Management: Santa Clara's Upper Watershed

Alvin Warren – Former Lt. Governor, Pueblo of Santa Clara
A Representative form Santa Clara Forestry Department

Two events in 2000 significantly reshaped Santa Clara Pueblo's relationship with the upper watershed of the Santa Clara Creek. In May the Cerro Grande Fire burned over 14,000 acres of the Pueblo's traditional lands, including over 7,000 acres of its reservation – mostly in the Santa Clara watershed. Two months later, on July 25, the Pueblo reacquired P'opii Khanu -- *5,046 acres of land containing the headwaters of the Santa Clara Creek. This was the culmination of over 140 years of effort by generations of Santa Clara people to regain this significant portion of their homeland. Former Santa Clara Pueblo Lt. Governor Alvin Warren was the Pueblo's Land Claims / Rights Protection Director during the reacquisition of* P'opii Khanu. *He will discuss the complex process used to regain this land, which included negotiations with the White House, New Mexico's Congressional Delegation, one of New Mexico's largest private landowners, and*

a coalition of environmental and other organizations. A representative of the Pueblo's Forestry Department will discuss the efforts to manage P'opii Khanu *since its reacquisition and to restore the Santa Clara Canyon in the aftermath of the Cerro Grande Fire.*

Session Summary:

Mr. Warren described the re-acquisition of 5,046 acres of land containing the headwaters of Santa Clara Creek by the Pueblo of Santa Clara. Santa Clara Canyon and Watershed has a 53,778 acre land base. It is the source of wildlife, water, sustenance, and a place of tradition and culture for the Pueblo of Santa Clara.

In 1860, the headwaters of Santa Clara Creek were taken from the Pueblo and made part of the Baca land unit. In the 1980s, with the federal acquisition of Valles Caldera, the Pueblo began negotiating the re-acquisition of the upper watershed lands. Many partners were involved, and negotiations ensued with the White House, New Mexico's Congressional Delegation and one of New Mexico's largest private land owners. They negotiated a deal that would return nearly the entire upper watershed to the pueblo by allowing separate and concurrent acquisition of property by the Pueblo of Santa Clara and the US federal government. 5,046 acres were acquired as well as 1,200 acres in conservation easements. Most of the land acquired required substantial restoration efforts. Mr. Warren emphasized the process of building partnerships to make the property acquisition a success, by: building relationships, using mapping and technology, finding common goals, and getting out on the land together.

Mr. Bauer described restoration work performed by the Pueblo following the 2000 Cerro Grande Fire that burned over 14,000 acres of the Pueblo's traditional lands, including 7,000 acres of its reservation. Before the fire, a large part of the canyon was open to the public. Following the fire, the Pueblo restored 1000s of acres. 1.5 million trees were planted on 4,036 acres. Remote areas required the use of helicopters to fly in containerized seedlings, and microsite planting techniques were used. For stream restoration, 4,000 one-rock dam were constructed, and 1,100 acres of slopes were stabilized using low technology methods such as tree-felling parallel to the slop contours in order to catch sediment. Hazardous fuel reduction projects and wildlife habitat projects have restored watershed health and re-established beavers in the upper watershed.

Watershed Management from the Agricultural Perspective

Janet Jarrett – Farmer, Los Lunas, NM, **Miguel Santistevan**- New Mexico Acequia Association, **Watson Castillo –** Rancher, Ojo Encino Ranchers Committee

How are agriculturalists – farmers, ranchers and acequia groups – contributing to watershed restoration? This panel of farmers and ranchers will focus on progressive farming and agricultural practices used in New Mexico for ecological purposes. Panelists will discuss techniques, the ecological and economical viability of agriculture in New Mexico, and provide lessons learned and tools that may be useful to agriculturalists or groups working on watershed issues.

Session Summary:

Mr. Santistevan described the history of agriculture in northern New Mexico: from pueblo civilization to traditional acequia systems to modern agriculture. He focused on the traditional

acequias. "The challenge is to re-train our concept of agriculture and go back to the integration of a very personal, intimate relationship with land and water." Acequia form and functions were not established with the idea of a static water right, but to give crops water in the early season. Acequia agriculture absorbs nutrients instead of releasing them. Acequias are whole systems with different uses at different levels in the system. The riparian areas were protected. Three principles of acequias are: *repartimiento* (water sharing), *convite* (sharing crops) and *cooperacion* (cooperation). For sustainability, is important to look at dryland crops in time of reduced precipitation. It is important to keep water rights with the land to maintain origin. The rest of the world can learn from New Mexico in a time of climate change.

Ms. Jarrett lives on the small dairy farm that she grew up on in the middle Rio Grande valley. Her talk focused on the benefits of agricultural use of lands, such as habitat enhancements as shown by the wildlife that live in the fields in the floodplain. The health of the upland watershed is important to the business of people in the valley. The flood plain is also an important part of the watershed. Before Cochiti Reservoir was built, farmers irrigated with spring runoff and used the water over and over again. A crop like alfalfa will use 460 pounds per acre of nitrogen (from wastewater and wastewater upsets from the cities). One problem is invasive species in the fields, including trees and noxious weeds. People are becoming aware of the need to reuse and recycle water responsibly. We need to be aware of the impacts of over-allocation on downstream users. Ms. Jarrett said she is heartened by discussions of sustainability that include a safe secure food supply. She encouraged the audience to think about the floodplain as a living, breathing watershed that agriculture helps manage.

Mr. Castillo described the Ojo Encino Torreon Wash Restoration project in northwestern New Mexico. The project consisted of water management, water development, road closure on 12 miles of roads, re-routing and re-seeding roads, re-introducing cottonwoods and willows, and erosion control using small structures in arroyos. School students were involved in many aspects of the project, as well as in cleaning up trash and a 4-H horse program.

Experiences of Two Watershed Groups – Ruidoso River Association and the Cimarron Watershed Alliance

"A Horse Named Buddy": **Dick Wisner** – Ruidoso River Association Inc., **Michael Bain** – Cimarron Watershed Alliance

Session Summary:

Mr. Wisner told about the history of the Ruidoso River and his story called "A Horse Named Buddy". He mentioned that "….a river is a treasure." Ruidoso means "noisy river." By the 1990s there was little life in the Ruidoso due to apathy, indifference, and city politics. In 1996, only 13 people showed up for a river clean up event, but this year, 700 people came out for a river clean up (out of a population of 7000).

"A Horse Named Buddy" (abbreviated version): A farmer tried to get his horse Buddy to pull his car out of a ditch. He called out to several other horses by name before saying "Pull, Buddy pull!" Onlookers were puzzled. The farmer explained "Buddy is blind. If he thought he were the only one pulling, he wouldn't even have tried." Through the work of the Ruidoso River Association, a handful of interested people have grown to 1000 people. They did their research, got grants, and drafted a minimum flow agreement with the village. They spent $800,000 stabilizing the ski area,

restoring the river in the park, and performing other restoration activities. They involved youth so that "the colts and fillies help Buddy pull." The Rio Ruidoso is now Ruidoso's "golden egg."

Mr. Bain described the formation and implementation of the Cimarron Watershed Alliance (CWA) The CWA consists of diverse interests coming together. From a social perspective, CWA has a strong and engaged board of directors that leaves personal agendas behind. There is a culture of openness at board meetings. Financial health of the organization insures that they can do good things. They must plan for all costs: planning, design, funding, implementation, public outreach, project compliance, monitoring, and organization overhead. Organizations must address financial health or they will not be sustainable. "Projects won't get us watershed health; we have to work on human behavior and consumptive behavior."

Keynote Speaker – Rainwater Harvesting, Brad Lancaster

"Turning Drains into Sponges and Water Scarcity into Water Abundance"

- Water harvesting techniques are often focused on the roof and rainwater collection, without much thought given to the landscape.
- The landscape around the water holding tanks should act as a sponge to prevent runoff and erosion.
- Treating rainwater and runoff as a problem is a path to scarcity. Rainwater should be a water source. It increases local resources. Scarcity = heat islands. Abundance = cool islands.
- Earthworks and water harvesting provide the potential to harvest water from soil at a lower cost.

Water harvesting techniques are often focused on the roof and rainwater collection, without much thought given to the landscape. The landscape around the water holding tanks should act as a sponge to prevent runoff and erosion. Ten times as much water storage capacity can be held by the soil. By planting vegetation you can obtain not necessarily the water but benefits such as fruit and other beneficial plants.

Tucson, Arizona provides an example of a city whose watershed has lost the ability to recharge itself as the soil has been replaced by streets and concrete. Storm water becomes a problem not a solution.

One inch of rain,
falling on 1,000ft ^{2} catchment surface = 600 gallons
falling on 1 acre catchment surface = 27,000 gallons

Treating rainwater and runoff as a problem is a path to scarcity. Rainwater should be a water source. It increases local resources. Scarcity = heat islands. Abundance = cool Islands.
Path to Abundance:

1. Long and thoughtful observation
2. Start at the top of the watershed and work your way down.
3. Start small and simple
4. Slow, spread, and sink the flow of water
5. Always have a plan for overflow and use it as a resource
6. Maximize living and organic groundcover – the sponge

7. Maximize beneficial relationships and efficiency by "stacking functions"
8. The feedback loop: long and thoughtful observation

Water sustainable landscapes create a sustainable system and reduce the need for storm sewers. An example is the Milagro Housing Development in Tucson with its sustainable landscape and rainwater as the primary irrigation source.

The oasis zone is within 30 feet of the home. Create your vegetation sponge within this 30 feet. This also reduces the amount of sun on your home by providing shade to reduce energy use.

Terraces, contour berms, check dams and grey water harvesting provide the potential to harvest water from soil at a lower cost. Grey water harvesting should directly drain into the landscape and don't store in holding tanks.
City led projects include Portland Oregon with The Green Strips Project and the Street Edge Alternative Project in Seattle WA.

Key Resources cited:

www.HarvestingRainwater.com
www.DesertHarvesters.org

Books: Rainwater Harvesting for Drylands and Beyond
Volume 1: Guiding Principles to Welcome Rain Into Your Life and Landscape
Volume 2: Water- Harvesting Earthworks

Watershed Group Needs & Sustainability

Julia Stafford – Cimarron Watershed Alliance, **Lou Naue** – San Francisco River Association, **David Groenfeldt** – Santa Fe Watershed Association, **Chris Cudia** – New Mexico Environment Department

This diverse panel of watershed group members and agency staff discuss some of the challenges facing watershed groups, and opportunities and innovations to address these. Panelists will discuss the issues they have faced with leadership, projects and development in their experiences with watershed groups, and how these issues have (or have not) been resolved.

- No Notes Available –

The Comprehensive Wildlife Conservation Strategy for New Mexico in Watershed Conservation and Management

Ginny Wallace, Project Manager, D. J. Case & Associates, New Mexico Department of Game of Fish

The Comprehensive Wildlife Conservation Strategy for New Mexico is a landscape-scale strategy for conserving wildlife using a habitat or ecosystem-based approach. Information contained in the Strategy can inform watershed management and restoration efforts that take wildlife needs into account. Ginny Wallace will discuss the origin and purpose of the strategy,

the process and criteria for identifying key habitats and Species of Greatest Conservation Need, and explore key habitats by ecoregion and watershed.

Session Summary:

The Comprehensive Wildlife Conservation Strategy for New Mexico (CWCS/NM) is a landscape-scale strategy for conserving all wildlife in New Mexico using a habitat or ecosystem-based approach. Information contained in the Strategy can inform watershed management and restoration efforts in ways that take into account needs of wildlife. CWCS/NM was developed to maintain eligibility for federal State Wildlife Grants. It is one of 56 such plans developed by every state and 6 US territories. New Mexico receives approximately $1 million per year in State Wildlife Grant funds, which have been in place since 2001. The strategy identifies nine key terrestrial habitats, ten key aquatic habitats, and 452 Species of Greatest Conservation Need (SGCN). In addition, the strategy outlines current conditions, threats to key habitats and SGCN, information gaps, research and monitoring needs, desired future outcomes, and recommended conservation actions to achieve those outcomes. CWCS/NM is for all New Mexico. The Department of Game and Fish encourages local, state, and federal agencies, watershed groups, tribes, and other entities to use the Strategy as a tool in planning and habitat restoration and management. It provides conservation guidance that can inform watershed management plans, National Forest and National Wildlife Refuge plans, BLM habitat management plans, Department of Defense natural resource management plans, County land use planning, as well as local government or private landowner Habitat Conservation Plans.

Key Resources cited by presenters (websites, publications, etc.): The document can be viewed at http://www.wildlife.state.nm.us/conservation/comp_wildlife_cons_strategy/index.htm

From the Mountaintop – Forest Landscape Restoration Act

Scott Miller- Counsel for the Senate Energy and Natural Resources Committee

The Forest Landscape Restoration Act of 2008, co-authored by Senators Bingaman, Domenici, and Feinstein, would provide a significant new tool for land managers, communities, and businesses interested in undertaking collaborative, landscape-scale forest restoration. Specifically, the purpose of the Act is to encourage the collaborative, science-based ecosystem restoration of priority forest landscapes through a process that encourages ecological, economic, and social sustainability, leverages local resources with national and private resources, and facilitates the reduction of wildfire management costs. The bill has not yet been enacted. If enacted and funded, the authority would facilitate and provide significant funding for landscape restoration. Other legislation pending in Congress, including the SECURE Water Act, also will benefit forest and watershed restoration efforts in New Mexico.

Session Summary:

The Forest Landscape Restoration Act of 2008, co-authored by Senators Bingaman, Domenici, and Feinstein, would provide a significant new tool for land managers, communities, and businesses interested in undertaking collaborative, landscape-scale forest restoration. Specifically, the purpose of the Act is "to encourage the collaborative, science-based ecosystem restoration of priority forest landscapes through a process that—

1. encourages ecological, economic, and social sustainability;

2. leverages local resources with national and private resources;
3. facilitates the reduction of wildfire management costs, including through reestablishing natural fire regimes and reducing the risk of uncharacteristic wildfire; and
4. demonstrates the degree to which--
    (A) various ecological restoration techniques--
        (i) achieve ecological and watershed health objectives; and
        (ii) affect wildfire activity and management costs; and
    (B) the use of forest restoration byproducts can offset treatment costs while benefiting local rural economies and improving forest health."

The Bill was reported by the Senate Energy and Natural Resources Committee in June, but has not yet been enacted. If enacted and funded, the Collaborative Forest Landscape Restoration Program established by the legislation would facilitate and provide significant funding for landscape restoration. The process for selecting projects is expected to be very competitive, so it is important for New Mexicans that are interested in landscape-scale forest restoration to be prepared if they are to successfully compete.

Congress recently reauthorized the Secure Rural Schools and Community Self-Determination Act, which includes significant new financial resources for collaborative National Forest restoration projects throughout New Mexico. Other legislation pending in Congress, including the SECURE Water Act, also will benefit forest and watershed restoration efforts in New Mexico.

To the River Bottom – Using the Clean Water Act to Promote Water Quality

Ms. Nelly F. Smith – US Environmental Protection Agency Region 6, **Abe Franklin** – New Mexico Environment Department Surface Water Quality Bureau, **Rachel Conn** – Amigos Bravos, **Scott Bulgrin**- Pueblo of Sandia Environment Department

The Clean Water Act is the most comprehensive federal water quality law. Written and passed by an inspiring bi-partisan effort in the early 1970s, the Act has been responsible for restoring and safeguarding our nation's waters. The main, broad reaching goal of the Act is "to restore and maintain the chemical, physical and biological integrity of the nation's waters." Requiring protections for waters that are clean and restoration for waters that are polluted, the Act provides a strong system for stopping and preventing pollution. The presenters in this panel will describe water quality standards and assessment against the standards, regulatory programs that address point sources of pollution, and a planning framework to address nonpoint sources of pollution.

Ms. Conn gave some background information on the Clean Water Act (CWA):

- The result of a broad mandate and bipartisan support with the objective to restore and maintain the chemical, physical and biological integrity of the nation's water
- It requires agencies and permit holders to provide information about our waters
- Different sections require different reports and permits

Sections of the CWA: Section 303(d) = list of impaired waters, Section 305(b) = national water quality inventory, Section 402 = discharge permits, Section 319 = non-point pollution control projects, Section 404 = dredge and fill permits – wetland protection, and Section 401 = State certification of federal permits.

Water quality standards have components – designated uses, water quality criteria, and antidegradation policy. Water quality criteria include chemical (metals, bacteria, chemical

contaminants, and pH), physical (temperature, sediment), and biological (biocriteria, biological conditions of a waterbody).

The Rio Gallinas is a success story of addressing water quality issues.

Mr. Bulgrin, discussed the Water Quality Standards (WQS) and National Pollutant Discharge Elimination Systems Programs (NPDES, point source discharges) and the CWA, and how it relates to The Pueblo of Sandia.

- Under CWA Section 402 each point source discharger is required to obtain a permit that limits the pollutant discharged.
- Activities that require a NPDES permit are: major and minor municipal WWTPs, major and minor industrial facilities, mines, combined sewer overflows, sanitary sewer overflows, storm water pollution, and concentrated animal feeding operations.

The Albuquerque Metropolitan Arroyo Flood Control Authority's (AMAFCA's) North Diversion Channel diverts approximately 67% of Albuquerque's storm water into Tribal waters of the Rio Grande. The North Diversion Channel is one of two that diverts storm water into the Rio Grande.

Dredge and Fill Activities – Under the CWA Section 404, whenever a project occurs that would affect waters of the US, a permit is required through the Army Corps of Engineers. Through an agreement with ACE, Sandia Pueblo is notified on all projects that may influence arroyos and water ways within and outside of the Pueblo. Mr. Bulgrin also discussed Section 402 activities that relate to storm water discharges associated with industrial activities and construction activity that results in land disturbances. The Pueblo's Environment Department that reviews all storm water projects that occur on Pueblo land and that may affect tribal lands.

What has the Pueblo learned dealing with WQS, NPDES and CWA?

- Communication between Federal, State and Tribal agencies needs to occur
- Regulated community needs to be familiarized with Federal, State and Tribal regulations
- Increased outreach to regulated community
- Enforcement concerns

Ms. Smith from EPA Region 6 presented on "Watershed Planning in the Clean Water Context."

OCTOBER 1: WORKSHOPS
WATERSHED WISE WORK[1]: SHARING OUR KNOWLEDGE

Watershed Wise Work: People, Policy and Nature

This panel discussed Successes and Challenges in Watershed Work - how have individuals and groups achieved success and tackled challenges, and what can other groups learn from their experiences? Speakers include: **Larry S. Allen** – The Malpai Borderlands Group, **Martha Schumann** – The Nature Conservancy, "The Rio Grande-Albuquerque Watershed Group - A Work

[1] The title "Watershed Wise" is inspired by Earth Works Institute's Watershed Wise Communities program.

in Progress" J. **Steven Glass** – Ciudad Soil & Water Conservation District, and **Bill Zeedyk** – Zeedyk Ecological Consulting

Session Summary:

Mr. Allen discussed the Malpai Borderlands Group (MBG). The MBG is a collaborative conservation effort engaged in the management of almost a million acres in the borderlands of New Mexico, Arizona and Sonora, Mexico. The organization evolved from a group of local ranchers who began to meet in the early 1990's to discuss mutual concerns about threats to their lifestyle and livelihood. In addition to the many grazing issues of that time these ranchers shared a concern about management of fire by the several involved state and federal agencies. They invited environmentally concerned individuals from Tucson and Santa Fe to join in the discussions and found a surprising level of agreement. The MBG was incorporated as a non-profit corporation. Currently ten board members serve. Included on the board are seven ranchers, two retired federal managers, and a representative of The Nature Conservancy.

Watershed management activities include management of fire in the ecosystem, management of upland and riparian vegetation, and gully restoration in the desert valleys. The stated goal of fire management for the area is restoration of fire as a functioning ecological process. There is a tendency for watershed managers to focus on streamside areas, while ignoring the uplands. We have found that proper management of the uplands will lead to improvement in the stream banks and riparian vegetation. Since the primary land use in the region is livestock grazing, this consists mostly of proper management of cattle in the uplands. In the desert shrub communities of the San Bernardino Valley, several problem gullies are in need of repair. This is done with a combination of machinery and hand labor, using the technique known as *Induced Meandering*, as advocated by panel member Bill Zeedyk.

The greatest obstacle encountered as this project started was a lack of trust. Much of this concern centered on wildlife management issues. The biologists and ranchers were not accustomed to working together and they questioned each other's motives. Because of the mix of federal, state, and private lands a myriad of laws must be addressed. Of particular concern are the Endangered Species Act, and the National Environmental Policy Act. Most projects were delayed or stopped, while the agencies suffered from "paralysis by analysis".

Early in the process the MBG saw a need for scientific scrutiny of proposals and they developed a principle of basing decisions on the best available science. When existing science was not adequate to answer the questions the group with support from the Rocky Mountain Research Station and several universities brought in investigators to study the ecosystem. Simultaneous with this science effort all players began to collaborate in a spirit of mutual respect and understanding. As the various players began to work together cooperatively, innovative ideas began to emerge. One significant breakthrough was the Peloncillo Programmatic Fire Plan, which addresses the many ecological and biological concerns on the involved federal lands in one document.

Currently the group is able to operate in an open, cooperative spirit. Major participants include the US Fish and Wildlife Service, the San Bernardino Wildlife Refuge, both state Game and Fish Departments, both state land departments. the Coronado National Forest, Rocky Mountain Research Station, BLM, Natural Resource Conservation Service, Agricultural Research Service, Animas Foundation, Sky Island Alliance, The Nature Conservancy, and local landowners. We find these relationships between local landowners, agencies, and conservation groups to be quite rewarding.

Mr. Allen remains optimistic that we will continue to be successful in managing these watersheds and habits for native wildlife and livestock, while preserving the lifestyle and livelihoods of our rancher members. Funding is always a challenge, and we find it difficult to raise operating expenses, including for the gully work. He believes that the tool that MBG has to offer this forum is a great deal of skill and experience in the collaborative process. They have an annual Ranchers Workshop, when ranchers and their partners from around the west are invited to visit the area for a couple of days and observe the process in action.

Martha Schumann – No notes available

Steve Glass –

In 2004, with the encouragement of the NM Environment Department (NMED), the Middle Rio Grande Water Quality Workgroup (a voluntary facilitated forum of agencies and individuals dedicated to amicably resolving disagreement about middle Rio Grande water quality) acquired funding through the Clean Water Act Section 319 grant program to form an EPA-recognized Watershed Group. From among the Workgroup participants, the Ciudad Soil and Water Conservation District (SWCD) was selected to coordinate the Watershed Group and to prepare a Watershed Restoration Action Strategy (WRAS) for the Albuquerque reach of the middle Rio Grande. For over four years, the Ciudad SWCD Board of Supervisors has used consultants to disseminate information to local community organizations about pollution entering the Rio Grande with storm water discharges, with a focus on fecal coliform bacteria that were identified by NMED as a specific cause for declaring the middle Rio Grande as impaired under the Clean Water Act. Ideas for mitigating storm water-borne pollution from the urbanized Albuquerque watershed were gathered from the same community organizations and, along with nationally-recognized best management practices, were included in the WRAS document written by the Watershed Group and published in February 2007. The Ciudad SWCD, on behalf of the Watershed Group, is currently working to implement the WRAS by sharing the document with decision makers in the watershed, developing a web-based watershed information sharing tool and participating with several other agencies in the Albuquerque Storm Team to disseminate information to the public about watershed protection. This presentation will chronicle the complex process of developing the Albuquerque-area WRAS and provide a view to the future of watershed protection in the Albuquerque watershed.

Bill Zeedyk – No notes available

Workshop Session 1:

Track 1: Watershed Group Assistance	Track 2: Forest Friendliness	Track 3: Promoting results & collaboration
How to Form and Sustain a Watershed Group Jan-Willem Jansens - Earth Works Institute & The Galisteo Watershed Partnership, Barbara Johnson – Rio Puerco Alliance, Ms. Nelly F. Smith – US Environmental Protection Agency Region 6	**Developing Prescriptions for Forest Restoration** Lawrence R. Crane – Bernalillo District Special Projects Coordinator, Energy, Minerals and Natural Resources Department Forestry Division	**Monitoring for Watershed & Forest Health** Rich Schrader – River Source, Eytan Krasilovsky – The Forest Guild, and Brad Lamb – US Environmental Protection Agency Region 6

Track 1: How to Form & Sustain a Watershed Group

Nelly Smith, EPA; Barbara Johnson, Rio Puerco Alliance; and Jan-Willem Jansens, Earth Works Institute

Number of Participants: Approximately 40

Session Summary:

Ms. Smith went through the steps for developing a watershed group, including: building partnerships, identifying issues of concern, setting preliminary goals, developing indicators, and conducting public outreach. WRAS documents need to include the critical EPA nine elements.

Ms. Johnson described the Rio Puerco Management Committee (RPMC) and Rio Puerco Alliance (RPA). The RPMC is an agency-mandated watershed group created by the Rio Puerco Watershed Act. The goals of the group are: 1) sediment reduction, 2) habitat enhancement, and 3) socio-economic benefits and education. The committee could have failed because stakeholders were at odds, but it didn't. RPMC has been going strong for 12 years. Communication to build understanding and trust were key. RPMC managed to get some funding but they are not a legal entity and required a fiscal agent. RPA was formed as a 501(c)(3). RPMC serves as the board of directors for RPA. The primary thing RPMC did was to open minds. It funded eight years of Navajo youth programs- having a major impact on youth and their parents. The most difficult part of a watershed group is keeping people around to do the projects.

Mr. Jansens described the Galisteo Watershed Partnership and Earth Works Institute's involvement in the project. The mission of Earth Works Institute is to help communities build capacity to protect, restore and live in harmony with their natural environment. The Galisteo Watershed Partnership began in 2000 using EPA's guidance and CWA 319(h) funding. From 2005 to present, the partnership has been involved in: policy influence and prioritization of interventions; developing its organizational format, scope and role; and ongoing wetlands studies and restoration implementation. Challenges for the partnership include: striking a balance in policy change; deciding whether to have a fiscal agent or be independent; funding sources; leadership continuity; and finding themes that speak to the public versus themes that are technically important.

Participant Comments or Feedback: A participant asked Mr. Jansens to expand on his organization's relationship with the county. He stated that they started with quiet diplomacy: developing personal relationships, became involved in working groups, and providing input for county planning documents.

Key Resources cited by presenters (websites, publications, etc.): Sharon Daugherty (214) 665-2259; http://riopuerco.org/Rio_Puerco_Alliance/index.html; www.earthworksinstitute.org;

Track 2: Developing Prescriptions for Forest Restoration

Lawrence Crane, New Mexico State Forestry

Session Summary:

Objectives for today:

- To promote discussion
- To open new avenues to explore
- To develop sources for collaboration or peer review

These are not considered in any particular order; all are inter-related.

What is your objective?

- This is the first question you need to answer when working on projects such as these.
- Examples of objectives of project: specific issues for wildlife, fire, education, recreation, forest products, combinations of these . . . etc.
- Influenced by stakeholders

What is your audience?

- Sometimes very restricted (i.e., a Pueblo), sometimes very broad (i.e., Forest Service, nationwide).
- Sometimes naïve (high school students), sometimes a sophisticated group that can oppose a project and stop it.

What do you have?

Look at what you have - habitat types, soils, wildlife habitat, wildlife species, historic evidence references, road system, traffic, recreational use, type of recreation (example: chips on mountain bike trails), cultural resources, accessibility, invasive weeds, etc.

How are you going to get there? You then need to identify the timing and tools.

There are many factors to consider - single or multiple entries, multiple years, possibility of removing forest products, workers stay on-site or commute, emergency exits, safety and fire, fire restrictions, safety equipment, contractors vs. inmate crews vs. volunteers, etc.

What is your Knowledge?

- Expand your network to include people that are knowledgeable about what you want to do, and that have done what you want to do.
- Know and accept your limits.
- Agencies (NM G&F, DoF district offices, FS district offices, NRCS, specialists, consultants) can all provide knowledge.

How does your project relate to the Big Picture?

- How does treating your acre relate to everything that is around it?
- Zoom out, and look at larger area. NRCS has good mapping tool.
- How does it affect things long-term?

What tools are you going to use?
Mechanized, hand crew, horse logging, moose logging, and rubber tires vs. tracked machinery, slash treatment, etc

What funding are you using?

- Some funding can't be used for certain things – check your funding restrictions.

- Private vs. public land
- Distance on defensible space or WUI treatments
- Conflicting ending fiscal year dates.
- Watch matching fund sources

What kind of time do you have?

- Limits on the funding
- Limits on time of year work can be done

What is site's history? Look at local traditional use (firewood collection, etc), archaeology, and nuclear contamination.

Think about future use of site.

Track 3: Monitoring for Watershed & Forest Health

Rich Schrader – River Source, Eytan Krasilovsky – The Forest Guild, and Brad Lamb – US Environmental Protection Agency Region 6

Number of Participants: Over 50

Session Summary:

Eytan Krasilovsky:

- Watch for positive and negative changes over time
- Why: to learn and share what we have learned; to improve collaborative forest/water restoration
- Objectives: evaluate your project implementation; assess the impacts of your project; inform adaptive management – inform selves through data
- "Good" monitoring: not just casual observation and reporting; it's systematic data collection using reliable methods; gathering baseline data and take repeat measurements
- Multiparty: a diverse group of people interested in your project; will help build trust among partners and establish project accountability
- How to monitor: proposal development, first multiparty meeting, write a monitoring plan, the Monitoring Process during a project, reporting and sharing
- Proposal to include: Existing and future conditions expected; what, who, and when will do it
- Have multiparty meeting; monitor common indicators of change
- Write monitoring plan and share with partners so they know their roles
- Collect baseline data; review baseline data with a multiparty team; collect post-treatment data and review with a multiparty team; repeat process each project year and with each treatment block

Brad Lamb; EPA Region 6 (Dallas, TX):

- Addresses nonpoint-source pollution (319 projects)
- www.epa.gov/owow/watershed/wacademy/webcasts

- Monitoring for watersheds means you have an assumption: solving water quality problems in your watershed; what's known: water quality impacts in receiving waterbody and stressors/sources causing impacts in waterbody
- Where to begin: at the stream of nonpoint source; identify sources of pollution
- Define monitoring approach based on project's water quality goal: should clearly define water quality goals based on data; know pollution type, sources to determine approach; keep i8t simple; be clear in objective/stick to the task at hand
- Purposes and design: ID problem, form objectives, monitoring design, select watershed scale
- Simple rules of thumb: develop budget for specific monitoring plan; data that don't support purpose have no value regardless of cost; purchase right equipment; monitor right variables; use right methods
- Recommended designs: paired watershed (two sheds and two treatment periods) comparisons, upstream-downstream; trend – consider advantages and disadvantages

Rich Schrader – Moving Data to Action:

- Create adaptive learning systems on ecosystem change and build bridges between scientists, citizens, colleagues, and policymakers
- Help people/communities understand their watershed
- Before measuring something, key thing is to design how you're going to monitor (what are key questions you need to answer? What are monitoring purposes – for education, assessing restoration project, etc.? Who needs the data and how are they going to use it?)
- Need more citizen-based, volunteer monitoring
- www.watershedwiser.org, community-based data-sharing tool (check it out and upload your date there!)

Key Resources Cited by Presenters:

eytan@forestguild.org; 505-983-8992; has sample monitoring plans available,
www.epa.gov/owow/watershed/wacademy/webcasts - archive of presentation
www.watershedwiser.org

Workshop Session 2

Track 1: Watershed Group Assistance	Track 2: Forest Friendliness	Track 3: Promoting results & collaboration
Integrating the Comprehensive Wildlife Conservation Strategy into Watershed Management Plans Ginny Wallace – D.J. Case & Associates, New Mexico Department of Game and Fish	**Prescribed Fire and Community Forest Planning: Developing a Community Wildfire Protection Plan in the Gila** Don (Donal R.) Weaver – US Forest Service (retired) **Prescribed Fire as a Tool for Forest and Watershed Restoration** John Lissoway – Wildland Fire Associates	**Resolving Environmental Conflict in Collaborative Forestry Projects** Wayne Pilz – PNM (retired), Todd Schulke – Center for Biological Diversity

Track 1: Integrating the Comprehensive Wildlife Conservation Strategy (CWCS) into Watershed Management Plans

Ginny Wallace, DJ Case & Associates for NMDGF

Number of Participants: Over 50

Session Summary:

Collaborative effort to implement strategies

- Website is great tool; can access whole document or parts
- Assessments and strategies for key habitats link; can click on part of map, which takes you to specific map; other links there; info on specific habitat, with other links from there; broken down into different analyses: ecoregion, watershed, etc.
- Database queries: standard and sophisticated; custom: "Species of Greatest Concern" (SGCN), then by many other desired queries (habitat, location, species status, etc.). Users can choose query parameters – predictive, not if a species exists – can query specific to a watershed (under Ecological Framework), habitat conditions
- Has spatial data and maps – view map, download data
- Also under Ecological Framework: information gaps; research, survey, and monitoring needs
- Use Bison-M database for updates on SGCN status changes
- State wildlife grants: 50% non-federal match; tied to objectives/species/habitats in CWCS/NM; helpful if multiple partners involved; Request for Proposals process
- Contact Steve Anderson at Stephen.anderson@state.nm.us or 505-892-6773
- Ginny Wallace's email: ginny@djcase.com

Key Resources Cited by Presenters:
http://128.123.178.235/cwcs/cwcsindex.php

Track 2: Prescribed Fire and Community Forest Planning: Developing a Community Wildfire Protection Plan in the Gila

Don (Donal R.) Weaver – U.S. Forest Service (retired) "Prescribed Fire as a Tool for Forest & Watershed Restoration." John Lissoway – Wildland Fire Associates

Number of Participants: 46

Session Summary:

Don Weaver: Catron County comprises 4.4 million acres—50% National Forest, 25% other federal and state, and 25% private. Healthy Forest Restoration Act requires a community to have a CWPP– requires collaboration between State Forestry, local government & Fire Departments. Writing, Public Involvement & Analysis were teams. Objectives are to (1) create a county-wide, landscape level plan (2) locate the highest areas at wildfire risk (3) prioritize areas based on citizen values (4) suggest mitigation actions to protect life, property, critical infrastructure & wild lands (5) follow-through to on-the-ground level by developing local Wildfire Protection Plans for implementation of

objectives. The main achievement was identification of how many acres must be treated every year–100,000–to meet the need of getting to all areas every 20 years.

John Lissoway: Mr. Lissoway discussed wild land fire use, and the application of appropriate management response to natural fires to accomplish specific goals in fire management plans.

Prescribed Fire is any fire ignited by management actions to meet specific resource objectives. A written and approved plan mandatory first. Burn objectives:

1. Visualize what the area will look like in 1, 5, 10 yrs.
2. Get support of locals. (Talk to them.)
3. What would good burn plan look like? Program *goal*, e.g. restore & maintain ecological role of fire back into ecosystem. Have measurable, achievable science-based and realistic objectives to help work toward it.
4. 4) Who implements plan?

Prescription elements include: fuel characteristics, related variables, safety of people. Once you set a prescription, follow it. If you get out of the prescription, know when to call it a wildfire and shut it down. There is software available to help you frame parameters.

Tips: Public relations are important, start simple, and consider desired fire behavior, season of burn for vegetation, conditions, duration, before-burn work, during burn work, in-office work, and out-of-office work. Readiness in case it gets out of control, EMS, supplies, food, briefing checklists, holding resources, holding boss, trained & qualified personnel. SAFETY.

Action Items or Ideas for Follow-up**:**

Keep CWPPs alive, encourage use; remind participants & others of results/needs identified; keep status of accomplishments current & published; support efforts of agencies to obtain resources; continue collaborative problem solving.

Key Resources Cited by Presenters: reservevfd01@hotmail.com 575 533 6006; www.NIFC.gov or Google Prescribed fire plan; www.catroncounty.net; CWPP Vol 1 (Body; CWPP Vo. 2 (Data); CWPP Vol 3 (Maps); www.FEIS.gov

Track 3: Resolving Environmental Conflict in Collaborative Forestry Projects

Wayne Pilz – Southwestern Biomass and PNM (retired), Todd Schulke – Center for Biological Diversity

Number of Participants: Approximately 40

Session Summary:

Wayne Pilz:
Key Points:

- Must have a sustainable fuel supply and a collaborative process with the environmental community.
- You must have a personal commitment to the process.
- It has to be a consensus process.

- Find the "zone of agreement"
- Trust isn't necessary, but agreement is necessary.
- It is important to make use of the new high-tech tools that are available in the process; they give a degree of objectivity and common ground for discussion.

Wayne was biomass generation coordinator for PNM and coordinated a collaborative community process on the impact of wood harvesting for biomass electrical generation. At one point there were 31 biomass generators in US, most in California, but now half are closed down because they didn't deal with the environmental community on wood sourcing. A plant requires 64 semi loads per day. PNM utilized innovative fuel supply analysis including satellite imagery reviewed with foresters on the ground to verify forest type. They approached environmental community, including The Nature Conservancy, The Sierra Club, The Forest Guild, Wild Earth Guardians, The Center for Biological Diversity, and others

The goals were to address catastrophic fire dangers and provide fuel for power supply. It has to be a consensus process because if any one group sues, the whole process will fall apart; have to commit to support a biomass plant for the next 30 years. They hired an outside facilitator, so PNM didn't control the process. There were nine months of meetings. The process developed a lot of mutual trust and evolved very quickly. End product was the "New Mexico Forest Restoration Principles".

Todd Schulke:

There are 18 principles in the NM Forest Restoration Principles document. First principle is "Collaborate." This is not an environmental principle, but is the basis of all else.

Other principles:

- "Reduce the threat of unnatural crown fire,"
- "Prioritize and strategically target treatment areas," so project doesn't seem overwhelming.
- "Use low impact harvesting techniques,"
- "Preserve old or large trees while maintaining structural diversity and resilience," "Integrate process and structure."
- "Plan for restoration using a landscape perspective that recognizes cumulative effects." Otherwise it is not cost effective for industry, nor effective for restoration goals.
- "Exercise caution and use site-specific knowledge in managing grasslands and pinon-juniper (P-J) savannas, woodlands and forests." No one type of P-J, many varieties, realize that we don't know everything and do the research needed.

Other examples of large-scale surveys:

The Signal Peak Area Assessment, in the Gila: this was a 300,000 acre assessment using LANDFIRE tools. It included a 27,000 acre NEPA area, a much larger area than typically reviewed. They came up with 6,000 acres of mechanical treatment, 21,000 acres of prescribed burn, and 4-5,000 tons for biomass heating.

The Analysis of Small-Diameter wood Supply in Northern Arizona: Another very large scale assessment, a 6 month process, using Forest ERA tools. They zoned the landscape into 6 areas including community protection, wildlands, etc. They analyzed 2.4 million acres, 67% eligible for

wood supply, 41% of landscape for mechanical treatment in a 20-30 year period (lifespan of business & technology). Identified potential source of 850 million cubic feet of wood.

Key Resources Cited by Presenters: www.fs.fed.us/r3/spf/nm-restor-principles-122006.pdf
www.cfri.colostate.edu/docs/PJSynthesis.pdf
www.forestera.nau.edu/project_woodsupply_finalreport.htm
http://frames.nbii.gov/niftt/docs/Signal_Peak_Landscape_Assessment.pdf

Questions:

How did you get input from ranchers? Forest Service and BLM were cognizant of the grazing and ranching issues. In other assessments, the ranchers were at the table. There are lots of benefits to the ranchers as well.

Is logging being shutdown? Some would say that there is no logging going on, and Todd would like to see more logging to address fire issues on a landscape scale.

Did any groups opt out of the process? All parties agreed to participate because we are seeing that these processes work.

Workshop Session 3

Track 1: Watershed Group Assistance	Track 2: Forest Friendliness	Track 3: Promoting results & collaboration
Funding Your Watershed Project: Ms. Sharon D. Daugherty – US Environmental Protection Agency Region 6, Courtney White – The Quivira Coalition, Prof. Denise D. Fort- Water Trust Board, University of New Mexico Law	**The Role of Entrepreneurship in Forest Restoration:** Naomi Engelman – New Mexico Forest Industry Association, Brent Racher – Racher Resource Management, LLC.	**Collaborating to Secure Water for River Ecosystems – Rio Bonito:** Mike McGee – BLM Roswell Field Office

Track 1: Funding your Watershed Project

Sharon Daugherty—EPA Region 6, Courtney White—The Quivira Coalition, Professor Denise Fort—Water Trust Board, UNM Law

Number of Participants: Approximately 65

Session Summary:

Prof. Denise Fort—Water Trust Board, UNM Law—Focus on State Programs:

Under Governor Richardson the review of water programs has been centralized through the State Water Cabinet, including the Water Trust Board. The board was set up to fund water infrastructure, long term investment, and create a mechanism to commit to New Mexico a share of big multi-state water projects. At the same time, a competing goal was to serve smaller communities that have infrastructure needs. It currently only funds governmental entities, but those guidelines may change.

Funding categories, some which may be at odds with each other:

1. Water conveyance, Storage & delivery (largest category of $$)
2. Watershed restoration & management
3. Water treatment, reuse, recycling & conservation
4. Endangered species act collaborative programs,
5. Flood prevention

Other state sources are River Ecosystem Restoration Initiative (RERI) and the Strategic River Reserve: Water in the river for ecosystem health.

Is the pie big enough? No, more funding is needed. NM is losing the race to protect its rivers. We are mining the groundwater statewide, which is resulting in more pressure on surface water sources, and climate warming leads to more evaporation. We need a change in paradigm – citizens recognize how important water is to our lifestyle, but it is not yet recognized in government. Water policy is unbalanced; it focuses on delivery, not restoration & protection. We need permanent, enabling legislation and legal grounds for instream flow, and a shared definition for restoration.

Sharon Daugherty—EPA Region 6—Federal Funding Sources:

319 Programs are congressionally funded to each region. States solicit projects, review and select, then forward to EPA for final review. Watershed group formation was the largest category, at 37%.

Clean Water Act:

- CWA 106, water pollution control
- CWA 604, water quality management planning
- CWA 319, nonpoint source management, Total Maximum Daily Load (TMDL) implementation
- CWA 104b3, wetlands assistance, Feb-March RFP available
- CWA 601a, revolving fund for wastewater treatment projects

Safe Drinking Water Act;

- SWA 1443, pubic water supply
- SDWA 1443a, revolving fund

Special Appropriations—Congressional special line item
Defense Appropriations for Homeland Security

Courtney White—The Quivira Coalition: Other Alternatives for Funding:

Recent national economy challenges may dry up federal "discretionary" funding. A lot of foundations are also struggling because of the stock market. The formation of watershed groups is the fastest growing sector of nonprofits in the west today. Funding for environmental work is 3% of overall foundation funding. Thus, we are all competing for a thin slice of the pie.

Do the agency funds cover your real costs? Often real costs sneak up on you: what does it cost to write the grant, compliance costs? Trying to make up the costs from other sources can become a "treadmill."

If you are losing money on the grant, maybe choose not to apply, write it to fund real costs, or specifically fundraise to make up the gap on certain projects. Use direct appeals to donors and friends to create a pool of discretionary funds that are more flexible, and can be used to cover real costs. Quivira is trying to be more selective to make sure to avoid the treadmill.

How can we make restoration economical? Look for private clients to market services? Subsidize other projects? Link conservation to food production?

Questions & Comments: How did Quivira make up the funding gap in the past? It got behind, took funds out of general operations.
Overhead cost can include lost interest on reimbursement grants upfront monies.
EPA has revolving funds, but that relies on having a way to recapture costs in order to repay the loan, often hard to do on commons issues.

Resources:
Show me the money—epa.gov/owow/funding.html
CWCS Database Site http://128.123.178.235/cwcs/cwcsindex.php

Track 2: The Role of Entrepreneurship in Forest Restoration

Brent Racher, Naomi Engelmann

Session Summary:

Naomi Engelmann: New Mexico has a labor supply problem, not enough workers for the work to be done. There are also labor capacity and efficiency problems – work is being done by NM Forest Industry Association (NMFIA) work is being done with Collaborative Forest Restoration Program (CFRP) funds to improve the former, the later comes over time. We need to create more fruitful environment for the entrepreneur.

Concerns were raised about cost-plus contracting, but both speakers promote it. No government agency is really doing it. There has to be a great deal of transparency and trust or else the contractors misuse the privilege and the government funds get wasted. It is a lower risk for contractor, and easier to get them to bid, but a higher risk for the agency. Land management agencies tend to cut costs as much as possible but that chokes the contractor over time.

There is no industry in NM – no paper mills and no OSB mills, which means there is no place to market our smaller diameter material. NEPA and no industry means thinning, not harvesting for NM forests. Access to supply for the contractor is another major issue. – without longer term access there's no point in starting.

Complaints about inmate crews? – Can undercut private industry, or allow (TH with NMSF) to leverage that cheap labor to provide greater profit to other contractors on one big project.

Forest Restoration Principles – Brent Racher stated that there is supposed to be a mechanism for thinning work on a landscape scale with prior approval already agreed to by many agencies and environmental groups.

NEPA, as mentioned before, also is problematic, in that it doesn't address the negative effects of not thinning. On the other hand, there are more NEPA ready acres than we have capacity to

manage in NM and AZ. We need to investigate the costs of NEPA and cultural resources clearances.

Track 3: Collaborating to Secure Water for River Ecosystems

Mike McGee – BLM Roswell

Number of people in attendance: About 35

The Bureau of Land Management (BLM) entered into a Water Resource Conservation Agreement with ISC in 2006. The BLM diverts water from Rio Bonito to irrigate public land for conservation purposes. BLM Rio Bonito acquired lands, and the use of diverted water for newly acquired grasslands and orchards. The BLM assigned 555 acre-feet per year of water right for placement into the Pecos River Water Resource Conservation Project.

Josh Mann expanded the project to look at the lower Pecos River Basin, including Rio Bonito. He explained the Water Resource Conservation. The Strategic Water Reserve was passed in 2005, which allows you to acquire water rights through lease or purchase or donation to help comply with ISC compacts or assist with water management for benefit of threatened and endangered species. The first strategic water reserve acquisition from Richard Vaughan on the Pecos River to benefit Pecos bluntnose shiner. The Pecos River Settlement was a settlement to prevent economic disaster in lower Pecos. ISC acquired water rights for delivery to Texas. The Bitter Lake National Wildlife Refuge has river restoration with ISC, the Fish and Wildlife Service, the Bureau of Reclamation, and World Wildlife Fund.

Workshop Session 4

Track 1: Watershed Group Assistance	Track 2: Forest Friendliness	Track 3: Promoting results & collaboration
Meet the Funders: Karen Menetrey – New Mexico Environment Department, Jeremy Kruger – State Forestry, Other Foundation and Agency Funders	**Improving Watershed Health with Woody Biomass** Krista Bonfantine – Arid Land Innovations, LLC, Jim Brooks – Soilutions **Innovations in Biomass Utilization** Carmen Austin – New Mexico Forestry Division	**Riparian Restoration: Water harvesting, Gully Treatments, Natural Channel Design** Steve Carson – Rangeland Hands, Van Clothier – Stream Dynamics Inc., Steve Vrooman- Restoration Ecology, Craig Sponholtz – Dryland Solutions Inc.

Track 1: Meet the Funders

- Notes Not Available – Informal Session –

Track 2: Improving Watershed Health with Woody Biomass & Innovations in Biomass Utilization

- Notes Not Available –

Track 3: Riparian Restoration: Water harvesting, Gully Treatments, Natural Channel Design:

Craig Sponholtz, Bill Zeedyk, Steve Carson, Steve Vrooman and Van Clothier

Session Summary:

Steve Vrooman: "A Few Years in the Life of the Canoncito Arroyo" – The Canoncito Arroyo flows into the Rio Grande. You have to study the past hydrology, etc. DOT paved the median. The solution – gabion structures. When they installed them, they also leveled the streambed and killed all vegetation and created a headcut. There was a flood a few years later that incised the stream, and brought water too deep for willows. Steve did an elevational profile, tracking the headcut, and saw the need to install rock structures.

Craig Sponholtz: The implementation process was done thorough assessment. They defined the problem and found what the source was. They started building structures, mostly with rock big enough to be handled by machines. When you do this kind of work, be aware of how you access the site and don't damage the site in the process. He used a backhoe to dump rock in stream to create "mini bridges" where it was necessary to cross stream, then to carry rock further down stream, and removed salt-cedar in the process, leaving slash on banks to control erosion. You can clean-up as-you-go. Craig had to build a pad for the dozer, which served for backfill for the cross vane built below it.

There are issues that sometimes pop up - sometimes you have to address public concerns. Where you have a wider flood plain, build out from the instream rockwork to spread the water and not allow a side channel to form.

Craig also did a lot of planting, in part because of his access to volunteers and public visibility to community of El Dorado. Further down river, at another headcut, he used step-downs to have water falling on water instead of scouring. Then he will revisit after floods and see what's working and what's not, and make repairs where necessary. Sometimes it is hard to find a truck driver willing to put big rocks in his truck (b/c it's rough on the bed) when you can't find rock on site. "If you build it they will come, and step on it. Monitoring projects is important.

Van Clothier provided examples of projects, including Zuni bowls, one-rock dams, and media lunas. He has fixed larger headcuts (6-8ft) with innovative techniques – hand placed rock to lay back the cut, armor with rock and channel it to stream bed where it is slowed by one-rock dams. It is only appropriate to do a run-down on a large headcut where it is stream flow turning into gully erosion. Also, be sure to compact the rock really tightly. Seed the heck out of the cut-back slope before you put down the rock, then the plants that grow up between the stones create the long-term effect. Innovation without knowledge is just guess-work. For most vanes, sharpen the ends of the sticks to get them to stick in the holes in a wet creek instead of floating. The purpose is to protect a cut bank. Be sure to assess the hydrology of a system; know if it's wet or dry and when and why and how to work around that.
If you want to hire a contractor, what to do before you call: Be organized, and have a budget prepared. Infrastructure takes monitoring and maintenance, stream restoration included. This protects the tax payer dollar.

Bill Zeedyk – The structure is the means to the end. Vegetation is the key factor. These structures are fairly resilient but you have to monitor for changes in water patterns or grazing management above where you put in a structure.

BREAK OUT SESSIONS

Several open topic sessions were identified by participants, and gathered on sign-up sheets near the registration desk. The topics were then discussed in small groups at the end of the second day. Each facilitator was given rough guidelines for the open topic sessions. The guidelines were:

1. Briefly introduce the topic – use queries and background story to clarify

2. Round robin in the group: people mention their name and group/location (if there is time with the size of the group)

3. Decide on 1 or 2 key topics/issues the group wants to address and what they want to walk away with –
    a. Decide upfront what you what to learn, decide or do – lists of actions, questions, advices, and/or recommendations for others
    b. Capture action items and key outcomes (via note taker)

Open Session Topics Included:

Topic	Facilitator
1. Creating a Watershed Alliance for New Mexico	Richard Schrader
2. Community-Based Monitoring	Rosemary Romero
3. Service Learning	Carol Schrader
4. Financing	Jan-Willem Jansens
5. Wetlands	Nina Wells
6. Thinning	Jeremy Kruger
7. Conflict between Low-Impact Development/ Water Harvesting & State Engineer's 96 Hour Rule	Chance Katz

Creating a New Mexico Watershed Alliance

Number of Participants: 13 Julia Stafford, 575-445-2632 csranch@bacavalley.com; Steve Fischer 505-761-8993 steve_fischer@blm.gov; Curtis L. Francisco 505-552-7546X11 cfrancisco@Lagunatribe.org ; Rich Schrader, rich@riversource.net 505 660-7928; Mike Bain, 505-795-1597 mbain@quiviracoalition.org; Harry Hopson, Ute Creek SWCD, 505 673-2242 Mosquero, NM 87733; Mark Scheinbaum, Cimarron Watershed, 575-377-6045 mbshine@aol.com; David Groenfeldt, Santa Fe Watershed Association, 505 820-1696 David@santafewatershed.org; Lou Naue, SFRA@Sanfranciscoriver.com; lou@sanfranciscoriver.com; Alan Huerta 575-376 2376 ach121052@aol.com; Francois-Marie Patorni 505-984-9125 fmpatorni@earthlink.net; Susan Rich 505-345-2080.

Session Summary:
An umbrella association would lend political clout and attract politicians. Funding pressure could be brought to bear on lawmakers by tying in policy, funding, and organizational support. Would address needs of urban groups, rural groups, and shared needs such as zoning, road standards, mentoring, trainings, monitoring, and circuit rider to train in facilitation of meetings. It also would

provide a way for watershed groups to communicate with each other. It also could bring a concerted dialogue with state agencies, and a united effort getting legislation written in the Round House and getting it through legislative committees.

Alliance would translate to economy of scale—auditors, etc.; streamlined administration would bring more money, jobs, hardware, software. Who would be a member—individual, or groups? One idea was just to have a board. Another was anyone could join. The group could be casual or a 501(c)3 or 501(c)6.

Needs: A current list of other Watershed groups. What is online is not current.
A problem was identified- tribes: can't get 319 grants. EPA has conflicting jurisdiction (Region 6 and Region 9) with boundaries, convincing elders in Laguna Tribe to collaborate. Part of the Rio Puerco is Region 9. Region 6 won't do anything about the dumping that the Hopis do that affects Laguna Pueblo because the source is in Region 9.

First goal is just to get together as a group. Can work out the details later!

Action Items or Ideas for Follow-up: Susan Rich, NMED, will receive information and make sure participants get information.

Key Resources cited by presenters: Merrit Frey River Network, Salt Lake City. River Alliance. Doug Jeffords name was mentioned as a source to get legislative funding.

Community Based Monitoring

Participants: Abe Franklin, Vince Tapia, Estella Moore, Maceo Martinet, Daniel Guevara, Chris Canvan, Geoff Smith

It was noted that initially, there was an expectation that EPA representatives would be part of the group for discussion. EPA direction has been to have programs be more accountable and this perspective trickles down to grants and how they are spending grant monies. EPA has the expectation that there will be built in accountability and success will be measured through monitoring. Community members present advocated for developing community-based monitoring that helps agencies with limited resources while utilizing local expertise as much as possible.

Implementation Monitoring: NMED utilizes Best Management Practices (BMPs) for instream monitoring and these drive how monitoring will be conducted.

Restoration: Perception is to put things to a more natural state while instream restoration is specific to reducing the loads. The 319 program has missed the importance of qualitative information. This is an expensive component that many grassroots organizations and communities do not have the capacity to undertake. However, there are many examples of other programs that conduct monitoring such as the USFS Collaborative Forest Restoration Program (CFRP) where the proponents can decide what they want to measure. For example, wildlife is an example of monitoring which requires a tremendous amount of money but can be built into the grant. The NMED representative hoped to have EPA representatives involved in the discussion about how best to conduct monitoring with limited resources.

The group discussed various aspects about community based monitoring as follows:

Community-based monitoring can make monitoring less expensive and is untapped – does create opportunities but is stringent. Other watershed groups (San Juan) have worked with students and teachers to develop a monitoring program that is accepted by NMED. Monitoring Plan must be developed through a Quality Assurance Project Plan (QAPP). In order to meet NMED requirements, community groups often hire experts and train community people. Training community members to do monitoring still can happen and is specific to skill. The issue for NMED is one of quality control. This could be discussed in the RFP process.

Youthworks does do water monitoring for the City of SF and this might be used as an example. The main workers are youth who are trained and then use the trainees to do more training. The Youthworks representative has found that young, eager people are willing to work and the program builds skills. The experience is enriching for students and helps them better understand agency work. It also builds exposure of youth to agencies – this is outreach and helps to also build an environmental ethic.

Community-based participatory research (monitoring) is fundable and has been funded in other areas such as the South Valley of Albuquerque by the NIH and others. The issue becomes one of the ability of NMED's ability to utilize data, but the link has to be made.

The group discussed how to develop community based monitoring in the 319 workplan and the various levels of rigor needed for monitoring. The group felt that a clear understanding of a timeframe for monitoring would have to be articulated especially since many of the grants were 1-2 years and this did not really allow for adequate monitoring. If monitoring was to be developed adequately it would require more outreach to individuals and organizations that could help develop such a program within an RFP. Funding for 319 comes through legislative appropriation and this also can be challenging.

Education and outreach in communities could also be part of implementation and become part of curriculum and the scientific rigor could become part of the curriculum design. For example, the San Juan Watershed Group has been addressing high levels of e-coli mostly from grazing. Through community based monitoring, the number of cattle use was reduced. This example indicates that through shorter time frame monitoring, there can be direct impact on reducing grazing pollution in a watershed by monitoring the number of cattle reduced.

Resources can be stretched by using community based monitoring, especially important for proximity to an issue. Utilizing community members for monitoring creates more accessibility to the problem to be addressed.

Participants discussed the drawbacks to using volunteers. For example, in a storm water project, the volunteers did not understand what they were collecting. In order to create more scientific rigor, training for volunteers will have to be very explicit.

The Youth Conservation Corps (YCC) monitors pollution on a day to day basis. Monitoring covers erosion quantity, etc. The city policy is helpful through education and training. Bringing back the river will be important.

Actions:

- Participants agreed that it would be important to get watershed groups to participate in a training session on procedures and would also require a QAPP revision. NMED will need to champion this possibility. Look to other states such as Texas for how they have addressed developing procedures for their "Clean Rivers" program. The purchasing of equipment through NMED grants could get into a five year cycle rather than and the current 8 year cycle of use.

- Use interns in coordination with academic institutions (Highlands, UNM, NM Forest Watershed Institute, high schools).

- Award system could be developed – example the Netherlands award – we could do this as an incentive.

Wetlands and Developing a Wetlands Action Plan

Group breakout session; suggested by Maryann McGraw, Wetland Coordinator, SWQB/NMED Attendees included representative from Santa Domingo, Sandia, Navajo Nation, EPA (2), NMED (2), and a biologist from Tijeras.

Session Summary:

Maryann gave a presentation of the importance of the Wetlands Program, funded by EPA through NMED. Guidance on documenting, enhancing and creating wetland habitat can be provided through this program. The wetlands program is voluntary, but the Clean Water Act has regulatory aspects that protect wetlands. How can citizens protect wetland habitat especially in urban areas? Using a Wetlands Action Plan is a good start, especially if it is tied to a Watershed Strategy or Plan. This can be a county or municipal document and can have local government protection. Partnering is how NMED expands the program.

Identifying a wetland and gathering community support to keep wetlands from destruction is a key tool. It is also important to understand the definition of wetland and the regulatory process most often used for protection. The Army Corps of Engineers (Corps) has the most jurisdiction over wetlands through the Clean Water Act section 404. A wetland usually can be described by having obligate plants, anaerobic soils and water, although there have been exceptions made. Anthropogenic wetlands (example used was acequias) and closed basins may not be jurisdictional, however may be protected through other resources. All stakeholders should be identified and invited to participate, even if they may have opposing views. Research water documents (quality, quantity, flood, regional plans, county plans, municipal plans, threatened and endangered, etc) that may be in place. It's possible that previous watershed work didn't necessarily document wetland improvements.

When wetlands are lost, it becomes a much bigger issue than just loss of habitat (nutrients, carbon sink, diversity, wildlife, hydrologic sponge effect, hydrologic recharge, pollutant buffering capability, etc). National wetlands inventory digitized has not been done in NM. It's a priority, and can be done through a project. GPS location and put on map, including digital aerial photography to document size and type.

Key Resources cited by presenters (websites, publications, etc.):
http://www.nmenv.state.nm.us/swqb/Wetlands/index.html

Service Learning

Session Summary: Pat Walsh introduced herself and briefly described her background in service learning projects, using kids in the state parks. Eight participants attended the session. Bill Zeedyk mentioned that service learning is not just for kids, but adults as well. He spoke about his experiences working with adult service learning projects. Pat reviewed an elk "exclosure" construction project using 7th, graders as well as a beaver deceiver project using high school juniors and seniors. Debbie Risberg mentioned beaver deceiver construction trainings offered in the state. This has allowed others to use the structures. The group discussed details of service learning projects including designs, costs, project life and water quality improvements. A discussion of the learning portion of the projects followed. Some key points to this were:

- Pre and post classroom activities to introduce the importance of the project and discuss its future outcome
- Keeping participants busy during the project
- When working with adults you have to learn when to supervise and when to get out of the way. There is a balance between teaching and talking down to adult participants.
- Safety training for tools and equipment
- Liability statements
- Making the experience rewarding and educational for participants

The Effects of Thinning on Wildlife, Old Growth and Water

Participants: Jeremy Kruger, Craig Daughtery, Lea Knutson, Nick Smokovich, Kent Reid, Andrew Fredrick, Doug Boykin.

Session Summary: Thinning prescriptions develop homogenous stand structure, for example, 20 feet spacing between trees, smaller diameter trees. From a wildlife perspective, structure diversity equals species diversity. Structural diversity is not included in a lot of thinning projects. Forests are dynamic and changing. There is a mosaic and this is not being modeled. A new "clumpy" modeling is being developed, which mimics what would happen on the landscape. There is a need to remove the "cookie cutter" approach to thinning. Old growth and diameter cuts are an issue, and you must be able to cut trees from small to larger trees. Because there may be issues with larger trees causing problems, it needs to be looked out differently. "Old growth" is sometimes associated with large trees which are not always the case. This is a structural condition. All ages of trees need to be maintained. Thinning responsibly would be the ability to remove all ages of trees. How do we develop a way of providing for a natural course of fire in order to create healthy forests? Ladder fuel and multi-story stand, where do you draw the line? Do we need to have multiple prescriptions? The objectives need to be made prior to the prescriptions. The larger the scale of the land, the more options are available for managing the forest. Education is a big part in obtaining the objectives. All objectives need to be recognized in managing the forest.

Recommendations: 1) Developing a model and getting it across (educating) to the work crew actually removing the trees; 2) Use landscape scale ;3) Defining objectives; 4) Invest the time in one-on-one cooperation; 5) Economic incentives - Landscape level work will provide long term sustainability; and 6) Baseline education.