Clearing the Waters

Newsletter of the Watershed Protection Division
New Mexico Environment Department

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The "Bottom Up" Watershed Approach

A story of how one woman is making a difference
By Neal Schaeffer

On June 12, 2001, Mary Bernstein successfully petitioned the New Mexico Water Quality Control Commission (WQCC) to classify San Pedro Creek. Mary is the very first non-agency person to do this. This action may even be nationally precedent-setting, as a significant victory for the "watershed approach."

The WQCC regularly adds or amends water quality standards. Typically, the New Mexico Surface Water Quality Bureau (SWQB) petitions for such a change. We usually do this in response to directives from EPA or some public concern, along with scientific findings like a measured impairment. The WQCC is a public forum, and others comment on our petitions. This input usually comes from other agencies, consultants who represent business concerns (like Los Alamos National Laboratories), and representatives of advocacy groups (environmental, cattle growers, etc.). Occasionally, persons speak on their own behalf.

This process very often includes no input from any resident of the subject watershed. These folks simply wake up to new regulations. This top-down paradigm is the norm, and it is the antithesis of the "watershed approach." Mary's action was part of a much different process.

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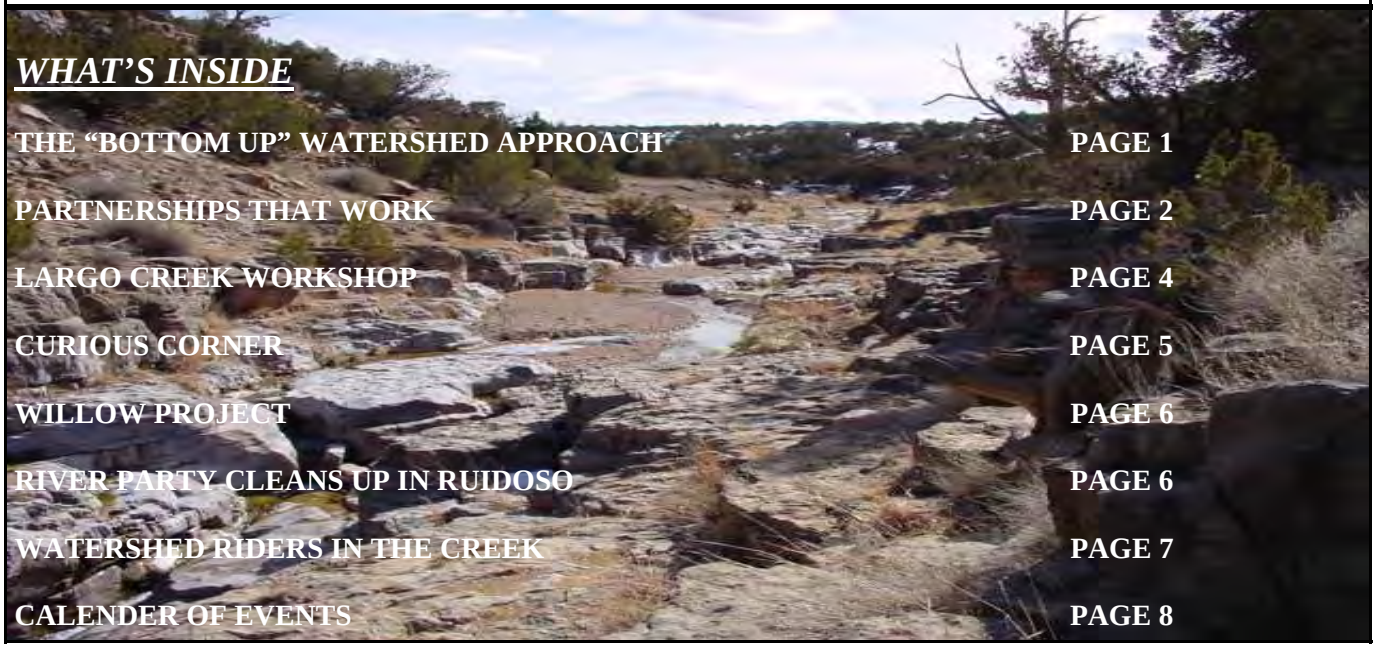

WHAT'S INSIDE

San Pedro Creek **Photo by Neal Schaeffer**

Partnerships That Work

A Look at the Essence of Watershed Groups

By Julie Arvidson

A watershed group can be composed of various entities (community, government, businesses) to protect and restore a selected watershed. The essence of a watershed group is these entities, or partners. Watershed group partners are those directly involved in developing the group and can be those who are helping the group to attain its goals. They define the watershed group by affecting what projects the group decides to tackle and how much funding it receives.

In order to receive valuable public support, which can lead to monetary and congressional support of the watershed, the group should examine who is affected by the watershed and what each partner can bring to the group, and not just involve those who naturally have consensus. To bring together partners from various backgrounds and ideas, the group should consider the scientists for their technical skills, the schools for their resources to children, the community for their input on what really works in the area and their drive, the bankers to assist in writing proposals for project funding. Partners can be those that own land in the watershed, teachers, the state environment department, the forest service, the local logging company, and anyone that feels that they are affected by the watershed. *(See list below)*

The group should consider that the decisions they make can affect the community (a logger, a rancher, a Tribe, a school) as a whole. Through education of their projects, or outreach, everyone the group works with to attain its goals can be envisioned as future partners (although some may be more involved than others). When the public, specifically those affected by the project, know *why* the project is taking place, they are more willing to support it, allowing for the project to flow smoothly and for future collaboration of those affected. For example, if an

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The partners within a watershed group exist between:

- **landowners** on the watershed,
- **government officials** that can help the group when needing governmental assistance for permits and financial support, for example, and technical advice when the group needs to make a decision regarding their watershed,
- **schools** within the area,
- **retired persons**,
- **civic organizations** for fund-raising skills,
- **women's groups** to involve more woman in maintaining the watershed and motivate and mobilize others,
- **local elected officials** to give the group political creditability and for financial support,
- **environmental and conservation groups** for technical assistance and knowledge of issues the watershed group may have but are unaware of,
- **farm organizations** to provide communication channels that already exist,
- **financial institutions** to provide financial assistance and offer prestige to the group,
- the **media** to offer outreach to the general public of what the group is doing by covering watershed group events,
- **community volunteers** and anyone who is affected by the watershed.

(http://www.ctic.purdue.edu/KYW/Brochures/GetToKnow.html, pg. 6.)

(**BOTTOMUP** *Continued from page 1)*
Although these things often have no clear beginning, for Mary it may have started when she bought a home near a beautiful stream. With this land came a homeowner's association that managed a conservation easement along the stream. Mary's volunteer activity in local politics and planning and her natural ability to lead, gave her the title of association president. The knowledge she acquired from this position revealed to her that the conservation easement offered only limited protection for "her" stream. In particular, she learned about threats from urbanization (this watershed is rapidly developing bedroom communities to Albuquerque). This all came about through countless meetings with neighbors, developers, planners, agencies, and other entities active in the watershed.

At about this time, Mary sought out help from state government. From the SWQB, she learned that the stream was unclassified in the state's Water Quality Standards. This means that the stream had only basic protection from degradation and contamination, but any unique aspects of the stream were not officially recognized nor protected.

Mary decided that she would take action to classify the stream. Her first step was to understand the stream with technical information. She arranged funding and conducted her own water quality testing (these data found their way into her son's science fair project). She engaged nearby University students in research and other work. She also convinced the SWQB to conduct water quality, biological, and geomorphological surveying.

This work revealed that, as beautiful as the creek may be, it was already suffering from significant impairment involving disruption of the sediment loading and hydrologic regimes. Through this work, Mary encountered a local expert in riparian restoration, Bill Zeedyk, who volunteered his expertise. This resulted in a community effort that has replaced damaging exotic vegetation (tamarisk and Russian olive) with native willow and cottonwood. The restoration is expected to stabilize stream banks, decrease water temperature, increase the depth of pools, and otherwise improve the habitat for fish and other wildlife.

Mary Bernstein looks near the middle of the restoration project area where stands of tamarisk and Russian olive were removed. Photo by Neal Schaeffer

In a "spare" moment one Tuesday, Mary presented her petition before the WQCC. After their normal public deliberation, WQCC formally adopted the standard Mary proposed. However, the *real* news is in how different this process was from anything that had preceded it. In this instance, the initiative came directly from the affected community, where it arose from local concerns. The SWQB merely provided comment (ensuring compliance with state law and regulation, beyond purely local interests). At the end of the day, the WQCC issued a decision as they always do. But in my opinion, this new paradigm resulted in a decision of very high quality. It was informed of values that were better refined than anything written in statute, regulation, or agency mission statement. And the next morning Mary awoke to a new regulation, but in this case it was both familiar and welcomed.

This WQCC decision is only a small part of a much grander effort. Mary engaged the SWQB and WQCC only as fellow stakeholders. Her effort provided a venue for us to satisfy our own mandates. But now she is moving on to other stakeholders and issues. One by one, she seems to be finding the best solutions available.

The "watershed approach" can mean different things to different people. The SWQB defines it as "a coordinated, voluntary, consensus-based approach to watershed issues." By itself Mary's action before the WQCC may not fill the bill, but her overall effort falls foursquare within our understanding of the term. Her work toward common understanding and consensus is truly community-building.

Through this new paradigm government finds its proper place, supporting the human community. From my personal perspective, work on this stream offers a greater sense of public service. During the WQCC hearing Mary apolo-

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Largo Creek Workshop

By Abe Franklin

Bill Zeedyk taught a hands-on riparian restoration workshop on Largo Creek near Quemado on May 19 and 20. The workshop was organized by the Quivira Coalition, funded in part by New Mexico's Clean Water Act Section 319 program, and heavily attended by members of the New Mexico Riparian Council and others interested in riparian restoration in New Mexico. The workshop utilized Bill Zeedyk's "induced meandering" technique, a local adaptation of Dave Rosgen's translation of fluvial geomorphology and hydraulic engineering for practitioners of natural resource management. Induced meandering focuses on conversion or restoration of small (including ephemeral) Rosgen "G" or "F" channels to narrower, deeper, and more sinuous "C" or "E" channels, often using on-site materials. One of the goals is to promote streambank stability, but the technique also generally increases the flood-prone area and the resulting area of riparian habitat.

In the Largo Creek example, where a 1200 foot stream reach flows in a straight and narrow gully, a certain amount of erosion was encouraged to accommodate greater sinuosity of the channel, but this was considered a short term sacrifice to attain greater streambank stability and reduced erosion in the long-term. Sufficient measurements were taken to estimate an appropriate meander wavelength, which corresponded to observations made of meanders in the abandoned floodplain

Figure 1: Looking upstream on Largo Creek, a deflector bracketed by wicker weirs will promote development of a meander.

fifteen feet above the current floodplain. Low-tech picket and wicker structures were installed by hand into the channel to encourage strategic erosion and deposition (Figure 1).

Figure 2: Bill Zeedyk describes the science behind the sweat at the end of a hard day's work while a recently-abandoned meander fills anew.

At least an equal amount of deposition is expected locally as erosion, because the structures were installed to promote aggradation of the channel bottom as a means of increasing the flood-prone width. At the lower end of the reach, a meander that had recently been cut off was restored with strategically placed rock, picket, and wicker structures to redivert the water into the meander. The hope is that bankfull flows will maintain that channel, and deposit sediment in the area where the meander had been cut off (Figure 2).

The owner of the property, Jim Williams, plans to graze his cows more lightly in the area than in the past, and will try to provide rest in the growing season, to allow the stubby willows and rhizomatous sedges and spikerushes present to assume a stronger role in protecting the channel and floodplain as it develops. He's betting that the increased area of high quality range will compensate for his not being able to use it as heavily. He and the other participants who put their backs and minds into the project await the coming years' floods with great anticipation.

*(**PARTNERSHIPS** Continued from page 2)*

institution approaches your community with a permit or an act that they say will change your community for the better, when you did not even know there needed to be any better, your community probably will not consider the change. You basically are expected to take the institution's word that it would affect the community in a positive way. Your community will not really understand what the institution is doing and why. The institution is not considering the community as an active partner needed to attain its goals. You can imagine if we flipped the coin and that institution is your watershed group. If the group expects to make any changes in the watershed, they first need to educate the community of what they are doing and why it is in the communities best interest. The group can then proceed with action, if those involved in the action understand why the group is doing it. A rancher is not going to like that he must graze his cattle away from

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(***PARTNERSHIPS*** *Continued from page 4)*

the stream, but when you present to him the different grazing alternatives and how grazing his cattle in other areas will positively affect the stream, he may be more inclined to participate with the group. In essence the group is educating the rancher. They are informing him of the problem by describing the reason behind the problem and how it affects his well-being, offering solutions to him, and asking him to contribute to a positive solution. They are not telling him why he is wrong and letting him figure out solutions on his own. At this point, he can be considered a partner in the watershed group because he is working with the group to attain its goals.

A watershed group whose partners only come from an organization, government or private, will have little sustainability on watershed restoration. As well, those groups whose partners only involve community volunteers have little knowledge about the technical skills you need to do much restoration and protection. The group with only organizations as partners will benefit with community partners to offer input from the community and provide leeway when dealing with projects that affect land in the community. As well, a watershed group that only consists of community volunteers will benefit from private and public organizations and companies with their technical knowledge and insight on how to receive grants and permits necessary to do ground work. In other words, the more broad based the partners, the more the group will be broad based and be able to restore and protect their watershed in a holistic manner.

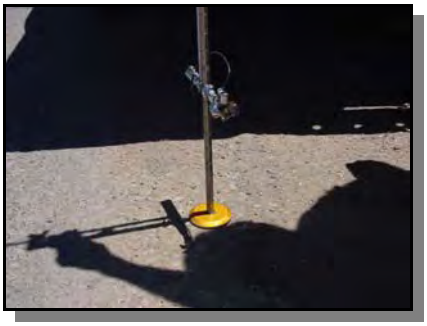
CURIOUS CORNER

Editor's note: Curious Corner is intended to provide information to the readers about the technical aspects of the Surface Water Quality Bureau. If a reader has any questions regarding technical issues, please let the me know and I can address it in the next newsletter.

Water Flow Measurement

By Julie Arvidson

Measuring water flow is used to help determine the Total Maximum Daily Load. Every stream is different so by measuring water flow, the SWQB can determine how much of the pollutants in a stream can flow in each stream and if the stream is polluted based on the level of flow.



Pygmy Meter

Each water sampling of a stream is accompanied by water flow measurement. There are specific instruments used in measuring water flow depending on the size of the stream or river. For shallow streams, a Pygmy meter is used. For faster flows, an "AA" meter is used. When measuring water flow, the width of the stream is divided into "windows" along a tape measure. (A "window" refers to the location on tape of where you are measuring. There are usually 20 "windows" for each measurement of flow.) The water depth is measured with a scribed wading rod (see photos). The "AA" and Pygmy meters mentioned above are attached to that rod. Velocity is calculated by counting each rotational turn of the meter within a certain amount of time. Water flow is calculated as velocity times the area of the window. Each window is then added up to calculate the total water flow for that stream.

Neal Schaeffer calculates water flow using a Pygmy meter, Digitizer, and measuring tape.

To learn more about water flow measurement, connect to the United States Geological Survey website at www.usgs.gov.

Willow Pole Planting: To Plant or Not to Plant

By Delbert Trujillo

Are pole plantings beneficial to all watersheds? How do we know when willow pole plantings are needed? These are some questions that have entered my mind since I conducted a pole planting experiment on one of my projects. In 1995, under the Clean Water Act 319(h) program, I was designated project officer for the Rito Penas Negras Restoration Project in the Santa Fe National Forest.

Willow Pole Plantings in Rito Penas Negras

After reviewing and conferring with my co-workers staff we decided that pole planting would be conducted on an experimental enclosure that was located within the project area. In the fall of 1997 we planted 250 willow poles in the enclosure.

Recently, Stephanie Stringer, Outreach Coordinator for the SWQB, and I conducted a site evaluation on the pole plantings that were planted in 1997. We noticed that a fair amount of willow poles had been washed away from the river bank during previous spring runoff and storm events. We counted 15 poles that had new leaf growth, while losing a substantial amount of plantings to environmental factors.

Based on the Rosgen Classification System, the Rito Penas Negras is an E4 stream type. Dave

E4 stream type, Rito Penas Negras

Rosgen states that E4 streams have stream banks that "are composed of materials finer then that of dominant channel bed materials, and are typically stabilized with extensive riparian or wetlands vegetation that forms *densely rooted sod mats from grasses and grass like plants*, as well as woody species". (Applied River Morphology, Wildland Hydrology, 1996)

After working on this project for the last four years, it seems that the willow pole plantings were an inappropriate Best Management Practice measure. The Rito Penas Negras stream is in its natural state. The river is doing exactly what an E4 stream type does; it has gently curved meanders, with gently flowing waters, and densely rooted grass banks to cool the surface water. The densely rooted grass banks control erosion and filter surface water during storm events.

So, should we plant willow poles in every watershed? We may see some watersheds with no woody riparian material and think, that this may be a degraded riparian watershed. Not so. Further studies such as old photos or personal conversations with locals are a resource that we can exploit to find historical information about watersheds. Take time to review and analyze your proposed project sites. Sometimes we may want to do the right thing for our watersheds but we may end up wasting time and resources.

RIVER PARTY CLEANS UP IN RUIDOSO

By Maryann McGraw

Watershed management in New Mexico requires an extremely creative process to address the variety of causes of water quality degradation that can affect a watershed. The approach to getting stakeholders involved in watershed restoration differs depending on the land and the community affecting the watershed. One of the challenges in an urban watershed is getting the numerous and diverse stakeholders involved – to get the local folks to really take an interest in restoring and protecting water resources and the

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*(**BOTTOMUP** Continued from page 3)*

gized for the "family album" aspect of her photo documentation. The Commissioners expressed the sentiment that this was like a breath of fresh air compared with the stodgy materials agencies usually present. The deliberation in the council chambers seemed to have a stronger relationship to the banks of a particular stream. It was the stream Mary was pointing out to the Commissioners, all huddled over a topographic map.

Watershed management is one of the more controversial aspects of environmental work. But as for how communities and governments should work, I don't think it gets much better than the process Mary is undertaking. This is what I mean, when I call this a victory for the "watershed approach."

Watershed Riders in the Creek

By Maryann Mcgraw
(Sung to the tune Ghost Riders in the Sky)

Two old cowpokes went riding out
One dark and windy day....
Upon a bank they took a drink
and choked on green decay...
When all at once a mighty herd
Of red-eyed cows they saw
A-plowin through the turbid creek — Yippee-yi-yo, yippee-yi-ya...
Kicken up a cloudy draw. — Pollution in the draw.....

Two more cowpokes went riding out
One windy, rainy day....
Caught in a flood, slipped in white mud
And both were swept away....
A bolt of fear shot through them as
They looked up in the sky..
They saw air pollution comin' down hard — Yippee-yi-yo, yippee-yi-ya,
And gave out their mournful cry — Pollutants from the sky.....

Their faces gaunt, their eyes were blurred
Their shirts all soaked and wet....
They called out to the local folks
We're not defeated yet...
Cause they've got to clean the Creeks and Lakes
And think about the sky...
Safe and clean creeks and streams — Yippee-yi-yo, yippee-yi-ya,
Is New Mexico's township's cry. — Watershed riders in the Creek...

The town met with the political folks
And heard them call their names...
If you want to save your soul from hell
A-riding on our range...
Then, mayor, change your ways today
And with us you will ride...
Keep our waters clean and pristine — Yippee-yi-yo, yippee-yi-ya,
For play and work and pride.... — Watershed riders in the Creek...

(**RUIDOSO** *Continued from page 6)*
flora, fauna and the human uses it supports.

The Ruidoso River Association has met the challenge of urban stakeholder involvement in many ways including throwing a party!! The 8th Annual Ruidoso River Cleanup Party was held in the town of Ruidoso on Saturday, May 12, 2001, and was once again a splashing success! The party was attended by over 550 residents and visitors alike (28% more than last year!). The "riverkeepers" volunteered their Saturday morning to pull more than 60 cubic yards of debris and trash from the Ruidoso River. For their efforts volunteers were filled to the brim with free breakfast, lunch, and refreshments as well as a receiving a boatload of valuable prizes courtesy of 116 local merchants and sponsors. Each river-loving participant also received a handsome commemorative T-shirt. The best part of the party was that everyone was talking about the river! Kids were talking about fish, and young and old alike were talking about river vegetation, floodplains, and open space and erosion control. And the best part of strong community involvement is the effect it has on community officials to pay attention to the Ruidoso River.

Riverkeepers picking up trash on the Ruidoso River
Photo by Dick Wisner

Of their many accomplishments, the Ruidoso River Association has maintained a dialogue with village officials regarding diversion to Grindstone Lake. They have installed an upstream gauging station on the Ruidoso that is presently on line and recording, and have developed a minimum flow agreement with the village. The river association is presently working on a drainage plan for Ski Apache, to mitigate sources of sediment from the ski area. According to Dick Wisner, director of the Ruidoso River Association, "We have turned the corner in saving this wonderful and noisy river." Something is always going on in the Ruidoso Watershed because everyone is interested, enthusiastic and involved! The Ruidoso River Association is truly the "Voice of the River."

CALENDER OF EVENTS

JULY

14 — NMED is hosting a Water Fair at Rancho de Taos. The fair will be held at the Talpa Community Center from 10:00 am to 4:00 pm. Free field tests of water collected from private wells on a first-come, first-serve basis will be available. SWQB staff will be on hand to discuss local water quality and related environmental issues. Area residents wishing to have their private well water tested should bring at least one liter of water in a clean, disposable, plastic or glass container that has not previously contained fruit juice. Water should be collected from the cold faucet at the kitchen sink. If a household water filter is used, both filtered and unfiltered samples should be collected. For more information, contact Julie Desai or John Gillentine of the NMED Drinking Water Bureau at 827-7536.

AUGUST

July 31-August 2—Western Regions/States NPS Meeting at Town and Country Hotel, 500 Hotel Circle North, San Diego, CA 92108. The purpose is to share information and expertise across regions and states, to discuss federal land issues and improve partnerships between federal and state agencies, and create a forum for discussion of issues relevant to State Management Plan and TMDL implementation. State, Tribal and EPA Region 6, 8, 9, & 10 Nonpoint Source Coordinators and other federal agencies are invited. For more information contact Marquietta Davis, Tetra Tech, Inc. at (703) 385-6000, ext. 167 or davisma@tetratech-ffx.com.

SEPTEMBER

18-19—EPA Region 6 Nonpoint Source Watershed Conference at the Fairmont Hotel, Dallas, TX. Topics include Water Quality for the Future, Learning from the Past; Public Health; Land Use and Management; Success Stories. State and Regional EPA and USDA staff, members of environmental and stream team groups, hunting and fishing organizations, city managers, public health officials and concerned citizens are invited. To register contact TIAER at info@tiaer.tarleton.edu or call (254) 968-9585.

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