Clearing the Waters Newsletter

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CTW is also available on our website at:

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

This newsletter is published quarterly by the Watershed Protection Section of the New Mexico Environment Department's Surface Water Quality Bureau. Funding provided by a CWA §319(h) grant from EPA.

Nina Wells named Environment Department Employee of the Year

Our very own Nina Wells was named 2010 Employee of the Year for the New Mexico Environment Department. Nina has worked for NMED as an Environmental Scientist-Specialist on the nonpoint source pollution program (under Clean Water Act §319(h)) for 19 years. She continuously performs her duties with high levels of reliability and integrity ensuring the success of the watershed projects she oversees.

A series of projects called "Respect the Rio," which she has been involved in with the Santa Fe National Forest, have led to improvements in many Jemez watershed streams, riparian areas, and wetlands, while also maintaining recreational opportunities in these beautiful areas valued by New Mexicans. These efforts led to the recovery of the Rio Cebolla downstream of Fenton Lake, which was recognized by EPA as a national success. Her work has also been instrumental towards restoring reaches of the Santa Fe River, Sapello River, and many others. For several years in the 1990's, she coordinated a spill response program at NMED, and as recently as last year helped ensure an effective clean-up of an asphalt spill in the Rio de las Vacas.

Nina's enthusiasm, dedication, years of experience, and training have played a significant part in the positive outcome of watershed restoration projects throughout her career.

Congratulations Nina!

NMED Surface Water Quality Bureau's Watershed Protection Section

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

EPA Seeks Comments on Draft Document on "Identifying and Protecting Healthy Watersheds"

The Environmental Protection Agency (EPA) is seeking comments on a recently released draft document titled "Identifying and Protecting Healthy Watersheds: Concepts, Assessments, and Management Approaches." This draft document provides the basis for implementing the Agency's Healthy Watersheds Initiative, which, in partnership with states, tribes, local governments, nongovernmental organizations and others, is intended to protect the nation's remaining healthy watersheds, prevent them from becoming impaired, and accelerate restoration successes. The Healthy Watersheds approach, as part of the initiative, is based on a holistic, integrated, systems view of aquatic ecosystems that acknowledges their dynamics and interconnectivity in the landscape.

The draft document includes an overview of the key concepts behind the Healthy Watersheds approach, example assessments of healthy watershed components, an integrated assessment framework for identifying healthy watersheds, examples of management approaches, sources of national data and key assessment tools. It contains numerous examples and case studies from across the country. The intended audience and potential beneficiaries of this document include aquatic resource scientists and managers at the state, tribal, regional and local levels, non-governmental organizations and federal agencies. Local government land use managers and planners may also benefit as they develop protection priorities.

EPA is seeking comments on this draft document until June 3, 2011. For more information, please visit: www.epa.gov/healthywatersheds.

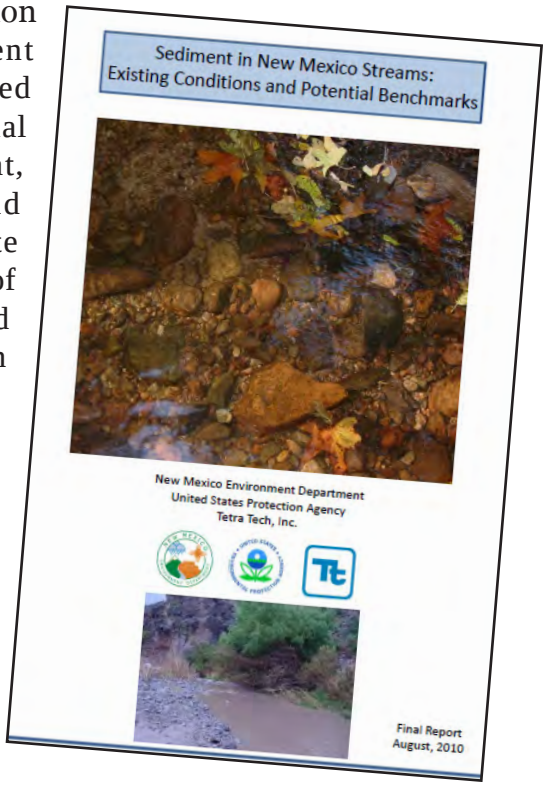
Proposed Clean Water Act Guidance Released

The Environmental Protection Agency and the U.S. Army Corps of Engineers are releasing for public comment proposed guidance describing how the agencies will identify waters protected by the Clean Water Act and implement the Supreme Court's decisions on this topic (i.e., Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers and Rapanos v. United States). The two agencies believe that under this proposed guidance the number of waters identified as protected by the Clean Water Act will increase compared to current practice and this will aid in protecting the Nation's public health and aquatic resources. In addition, the two agencies believe that when the revised guidance is finalized and goes into effect, it will improve CWA program predictability and clarity regarding the scope of "waters of the United States" protected under the Act and that this will have benefits for both the government and regulated parties. When finalized, this guidance would supersede previously issued guidance, and will apply to all CWA programs, including section 303 water quality standards, section 311 oil spill prevention and response, section 401 water quality certification, section 402 National Pollutant Discharge Elimination System permits, and section 404 permits for discharges of dredged or fill material. The two agencies seek public comment on all aspects of the proposed guidance, including interpretations and scientific underpinnings.

EPA has a 60-day public comment period that closes on July 1, 2011. To access the guidance and submit comments, go to www.regulations.gov/#!documentDetail;D=EPA-HQ-OW-2011-0409-0001

Sediment Report and Protocol Released for New Mexico Streams

With the financial support of EPA, Monitoring and Assessment Section (MAS) staff worked with TetraTech to develop new assessment approaches for bedded and suspended sediments in a report titled "Sediment in New Mexico Streams: Existing Conditions and Potential Benchmarks." Altered sediment supply can affect aquatic life and habitat, but the degree to which certain sediment quantities are unnatural and detrimental was unclear. The goal was to develop benchmarks by site class to better implement the existing narrative criteria. The purpose of these analyses is to identify sediment characteristics that are expected under the range of environmental settings in New Mexico, especially in undisturbed reference streams.

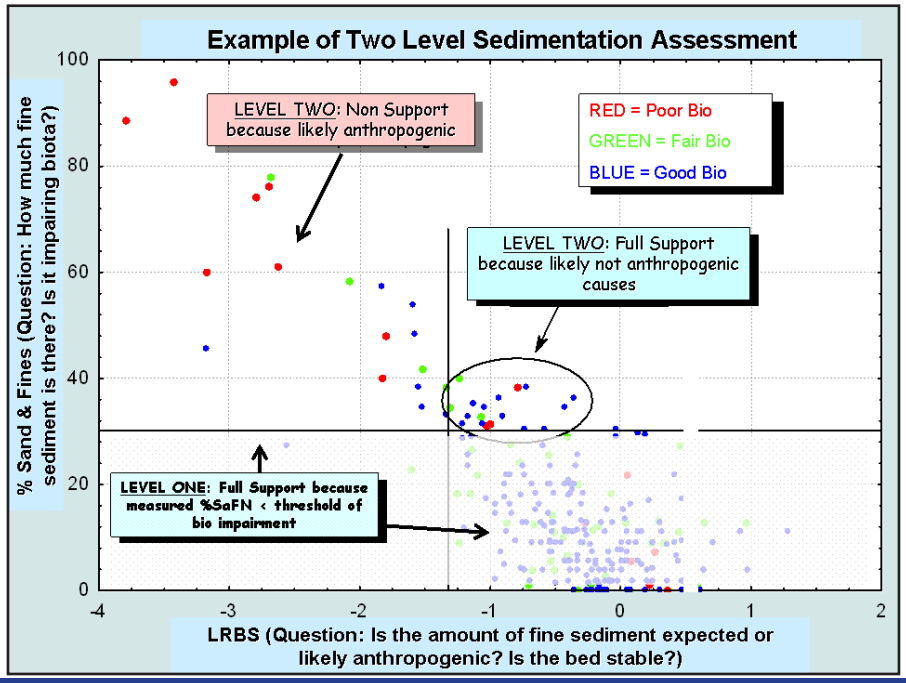


The results of the report support a two tiered assessment approach. The first level evaluates the percent sand and fines present to determine if impairment of the biotic community is likely. The second level then uses relative bed stability – a geomorphic measure - to determine if the percent sand and fines present are expected given the stream's geomorphic characteristics. The final report has already led to changes in the MAS's data collection approach and resulted in a revised assessment protocol for the development of the 2012-2014 305(b)/ 303(d) Integrated Report.

Sediment in New Mexico Streams: Existing Conditions and Potential Benchmarks Report
ftp://ftp.nmenv.state.nm.us/www/swqb/MAS/Protocols/NMSedimentation2010.pdf

NMED Sediment/Siltation Assessment Protocol for Wadeable, Perennial Streams
ftp://ftp.nmenv.state.nm.us/www/swqb/MAS/Protocols/AssessmentProtocol+Appendices.pdf

NMED Sediment Threshold Development Plan
ftp://ftp.nmenv.state.nm.us/www/swqb/MAS/Protocols/SWQBSedimentThresholdDevelopment.pdf

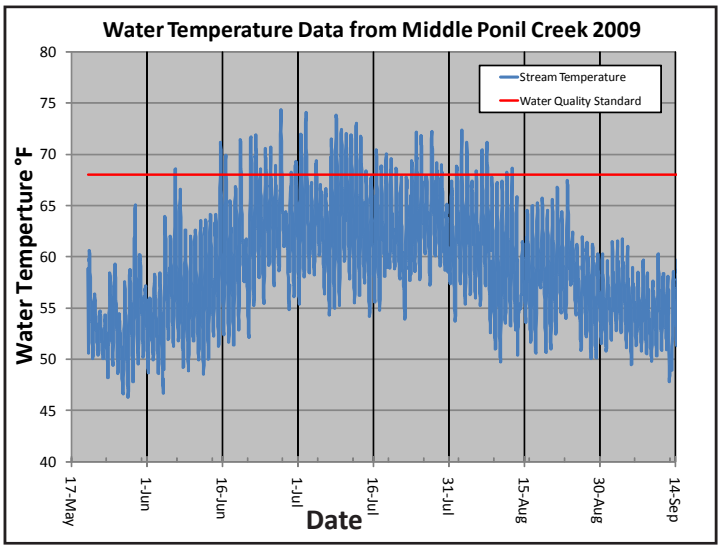


Cimarron Watershed Alliance

By Chris Cudia, SWQB-WPS

The Cimarron Watershed Alliance (CWA) has been meeting monthly for almost 10 years now, and has emerged as one of New Mexico's leading stakeholder-driven watershed organizations. Early attention to governance and a welcoming attitude yielded a robust organizational structure, strong partnerships, and numerous project opportunities. A 2000 319(h) grant provided them with a facilitator for the early days. By 2004, the CWA had gained nonprofit status and began to implement watershed restoration projects with grant funding. The CWA has since been successful in capturing several more grants and has been adroit at leveraging resources, building partnerships, and creating synergy. One testament to their success is the fact they have successfully navigated several leadership transitions and changes within the Board of Directors without losing momentum. Even a brief summary of CWA's diverse accomplishments is well beyond the limits of this space so it's fitting to focus on one notable project with deep roots.

Multiple reaches of Ponil Creek are not supporting the water quality standard for a high-quality coldwater fishery due to elevated water temperatures (see graph). The high-quality coldwater fishery designated use requires that a stream reach must have water quality, stream bed characteristics, and other attributes of habitat sufficient to protect and maintain a propagating coldwater fishery (i.e., a population of reproducing trout). The water temperature standard for a high-quality coldwater fishery is 20°C (68°F).



Ponil Watershed Post-fire

Total Maximum Daily Loads (TMDLs) were completed for the Ponil Watershed in 1999 and 2001. These were some of the very first TMDLs promulgated in New Mexico. However, the character of the watershed changed dramatically after the TMDLs were completed since the Ponil Complex Fire (PCF) in 2002 burned approximately 92,000 acres in and around the Ponil Watershed. The PCF was one of the largest fires on record in New Mexico. Post fire rains on exposed hydrophobic soils resulted in accelerated erosion, high sediment transport rates, and elevated peak flows. Peak flows approaching the 50 year flood return interval were common immediately after the fire. The fire pattern produced some mosaic in the forest stand structure, but vast tracts within the uplands experienced extreme burn intensities and total stand replacement. Stand replacement wasn't limited to upland vegetation either.

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Prior to the Ponil Complex Fire, riparian woody vegetation consisted of a cottonwood overstory and willow/alder understory, but the fire killed and/or consumed much of the riparian vegetation along Middle and North Ponil Creeks. Charcoal can still be seen on the base of standing dead cottonwoods right at water level. The aquatic community was virtually eliminated. Many segments of riparian were devoid of vegetation, and overwhelmed by post-fire flooding, the stream channel, erosion, and sediment transport rates were destabilized. Streambed scour, bank erosion, large deposits of burn/flood debris, and headcutting were evident throughout.

Enter the Ponil Project.

Building on the success of a post-fire rehabilitation project completed by the Philmont Scout Ranch in 2004, the Cimarron Watershed Alliance was awarded a second 319 grant in 2008 to partially implement a temperature TMDL on Middle Ponil Creek. Mindful of the fact the temperature TMDL was written a year before a record wildfire swept through the landscape, the CWA nevertheless rose to the challenge. The Ponil Creek Riparian Restoration Project includes an impressive group of partners including the CWA, Vermejo Park Ranch, Philmont Scout Ranch, the New Mexico Department of Game and Fish (NMDGF), and the Quivira Coalition. In addition, the project has received significant and continuing technical/field support from Cimarroncita Ranch, the New Mexico Energy Minerals and Natural Resources Department's Office of Forest and Watershed Health, State Forestry Division, and the US Forest Service. This interdisciplinary team represents a diverse range of expertise in geology, forestry, biology, wildlife, hydrology, and fluvial geomorphology.

As previously indicated, the Ponil Project is primarily focused on reducing water temperature. Riparian areas and uplands remained highly unstable for several years following the fire but by the time the Ponil Project was awarded, these conditions had improved. Peak stream flows attenuated significantly as did upland soil erosion/transport rates.

Baseline

The first year's efforts focused on gathering baseline data and implementing best management practices (BMPs). Water temperature, canopy shade, and stream morphology data were collected to identify specific heat loading source areas. In the process of collecting these data, project coordinators noted another probable source of heat and sediment loading, namely, roads.

BMP Implementation: Exclosures

The need for some BMPs was obvious from the start and didn't require any independent confirmation from baseline data. Riparian canopy was significantly compromised by the fire and moderate to heavy browsing by elk was suppressing recovery of the woody component. Philmont Scout Ranch employees and visiting scouts installed several riparian exclosures to protect emerging cottonwoods and willows during the first year of recovery. In subsequent years, more exclosures were built. In addition, streambank stabilization and grade control structures were installed, and several road crossings have been rehabilitated.

Philmont Scout Ranch employees constructing Ponil riparian exclosures in 2009

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Road Crossings

Initial baseline monitoring and field reconnaissance identified low-water road crossings as a probable source of sediment and heat loading. There are six low water crossings between Ponil Camp and the top of the Barker Wildlife Area. These crossings were very wide, unstable, and the approaches to the road crossings were poorly drained. All road crossings and some of the most severe road drainage issues will be addressed before this project closes. One notable example of the synergy created by this project is how efforts initiated by CWA helped to elevate and advance the low-water road crossing issue for Middle Ponil Creek. Last year the NMDGF received a grant to rehabilitate low-water crossings within the Barker Wildlife Area. After that project is completed, the low-water road crossing issues will have received comprehensive attention.

Typical overwide low-water crossing pretreatment

Wrapping it all up.

Vegetation

Middle Ponil Creek still has some challenges to overcome. Although the riparian woody understory component (willow/alder) has recovered in some reaches, it remains compromised in others. The cottonwood gallery will obviously take more time to get reestablished and mature. In the mean time, effective shade in the riparian corridor will remain below site potential and water temperatures are likely to be affected.

Morphology

Stream morphology is once again approaching dynamic equilibrium as the erosion and sediment delivery has moderated. Stream width and stream bank erosion continue to be issues in some areas but width-to-depth ratios are generally getting lower and exposed banks continue to be colonized and stabilized by vegetation.

Data

Data analysis will intensify as this project nears completion. Data have been collected continuously since the project began and individual BMPs are also being monitored for effectiveness. Final findings and conclusions will be presented once the data recovery and analysis process is complete. However, a very encouraging recovery indicator is the return of beaver. Beaver activity has increased dramatically over the past few years to a point where numerous active beaver dams can be found within the project area.

Over the past 10 years the Cimarron Watershed Alliance and its partners have established a strong positive presence in New Mexico. Their record of accomplishments is evidence of a successful stakeholder-driven process. The Ponil Project is just one of many activities deserving high praise.

CIMARRON WATERSHED ALLIANCE

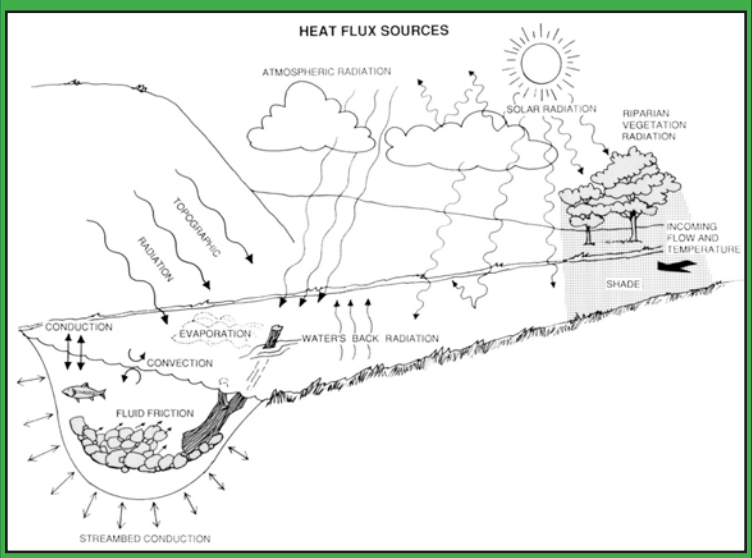
Mission: "To strive for and maintain a healthy watershed through collaborative community activities involving all stakeholders with an interest in water."

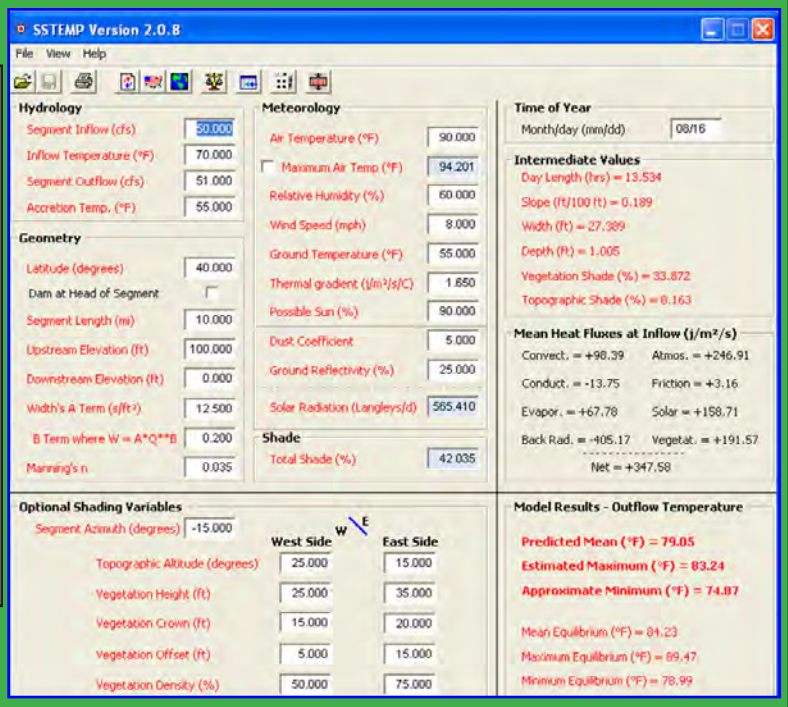
www.cimarronwatershed.org

Load Reduction Calculation

Riparian vegetation, stream morphology, hydrology, climate, geographic location, and aspect influence stream temperature. Although climate, geographic location, and aspect are outside of human control, the condition of the riparian area, channel morphology, and hydrology can be affected by land use activities. Riparian area and channel morphology disturbances can be attributed to past, and to some extent current, land management practices that result in reduction of riparian vegetation and streambank destabilization. These nonpoint sources of pollution primarily affect water temperature through increased solar loading by: (1) increasing solar radiation reaching the stream surface by reducing shade cover and (2) increasing stream surface area exposed to solar radiation loading by channel widening and increased width-to-depth ratios.

For the Ponil Project, pollutant load reductions will be estimated from the Stream Segment Temperature Model (SSTEMP) following the same procedures used to develop the TMDL (www.nmenv.state.nm.us/swqb/TMDL/list.html). The US Geological Survey developed this model which can be downloaded for free at www.fort.usgs.gov/Products/Software/SNTEMP/. The SSTEMP temperature model was utilized for Ponil Creek to predict stream temperatures based on the stream's specific geometry, hydrology, and meteorology. These values were then compared to actual thermograph readings measured in the field. Once calibrated, SSTEMP was utilized to identify stream and/or watershed characteristics controlling stream temperatures and quantify the maximum loading capacity of the stream to meet the water temperature standard (20°C). This model is important for identifying possible implementation activities to improve stream temperature by targeting those anthropogenic factors causing impairment to the stream. At the conclusion of the Ponil project, increased shade cover percent as well as other affected variables will be entered into the model to determine a temperature load reduction in joules per square meter per second.





SSTEMP Model Interface

GET INVOLVED!

See the events below for opportunities to learn about watersheds and how to restore them.

May 20-22nd, 2011 – Bear Trap Canyon Volunteer Restoration Weekend. Albuquerque Wildlife Federation. http://abq.nmwildlife.org/

May 20-22nd - Los Amigos de Valle Caldera have a volunteer work weekend planned to restore/enhance wetlands on the San Antonio River. To volunteer please contact Jack Crane at jdcrane@valornet.com.

May 22nd – An Expedition into the Galisteo Basin. Part of Earth Works Institute's "Stories of the Land" program. 8:30 am – 3:30 pm. Galisteo Basin. Register at http://earthworksinstitute.org/event-registration/. For more information, email info@earthworksinstitute.org or call (505)-982-9806.

May 23rd – The New Mexico Riparian Council will have its meeting and fieldtrip tour in the Gila River watershed. Please RSVP Adrian Oglesby at adrian@swcp.com.

June 9-11th - Red River Restoration Symposium. The Symposium will provide a forum for discussion and focus on developing a strategy or blueprint for the comprehensive restoration of the Red River. General public and local citizens welcome and encouraged to attend. Red River, New Mexico. http://r3group.org/symposium

June 13th - Santa Fe Watershed Forum and Field Trip. The goal of this forum and field trip is to share lessons learned and the science behind the ongoing restoration efforts in the Santa Fe Watershed to managers in other municipal watersheds at high risk of catastrophic fire. http://events.r20.constantcontact.com/register/event?llr=4joc8zdab&oeidk=a07e3tsy1if0c869e1f

June 17-19th - Rio de las Vacas Volunteer Restoration Weekend. Albuquerque Wildlife Federation. http://abq.nmwildlife.org/

June 25th - Upper Cedro Creek Gully Restoration Workshop. Quivira Coalition. Tijeras Canyon, NM. For more details, see http://quiviracoalition.org.

July 15-17th – Valles Caldera I Volunteer Restoration Weekend. Albuquerque Wildlife Federation. http://abq.nmwildlife.org/

July 22nd - Carbon Economy, Carbon Farming and Regenerative Agriculture Workshop Series. Public Talk 7-9pm "Water Our Most Precious Resource" Nate Downey presentation and panel discussion. Santa Fe, NM. www.carboneconomyseries.com/calendar

July 22-23rd - Geomorphology Surveying and Photo Monitoring Clinic. Quivira Coalition. Valle Vidal Unit, Carson National Forest. For more details, see http://quiviracoalition.org.

July 23rd - Carbon Economy, Carbon Farming and Regenerative Agriculture Workshop Series. All Day Workshop 9:30-4:30 pm "Pattern Applications for Water Harvesting in Arid Lands" by Nate Downey. Santa Fe, NM. www.carboneconomyseries.com/calendar

July 24th - Carbon Economy, Carbon Farming and Regenerative Agriculture Workshop Series. All Day Workshop 9:30-4:30 pm "Keyline Design for Whole Farm Fertility" by Owen Hablutzel. Santa Fe, NM. www.carboneconomyseries.com/calendar

August 12-13th - Annual Comanche Creek Workshop--Rio Grande Cutthroat Trout Habitat Restoration. Quivira Coalition. Valle Vidal Unit, Carson National Forest. For more details, see http://quiviracoalition.org.

If you have an event that you would like posted, please email matthew.schultz@state.nm.us