

CLEARING THE WATERS

Newsletter

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CTW is also available on our website at:

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

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Invasive alga 'Didymo' discovered in the Pecos River

By Danny Davis, SWQB Monitoring and Assessment Section

The diatom *Didymosphenia geminata* (Lyngbye) Schmidt, commonly known as 'Didymo' or 'rock snot,' has been confirmed in the upper reaches of the Pecos River. Following a report from Trout Unlimited-Truchas Chapter of an unusually extensive algal bloom in the upper Pecos River, Bureau staff collected samples of the algal material for analysis. Based on microscopic examination, the diatom was confirmed as *Didymosphenia geminata*, an alga that is relatively common throughout the world, but now showing the extraordinary capacity to impact stream ecosystems on a global scale. This is the first time Didymo has been documented in New Mexico.

Diatoms are a type of single-celled algae found in almost every freshwater and marine habitat. Didymo is native to cold, nutrient-poor waters of northern latitude regions of Europe, Asia, and some parts of North America. Even though Didymo is a single-celled organism, it can produce massive extracellular stalks creating thick mats resembling



Didymo bloom at the Pecos River.

fiberglass insulation or brown shag carpet, which can cover up to 100% of the stream bottom. In its native range, episodic blooms of Didymo have been recorded for over a 100 years and are considered a natural phenomenon. However, growth patterns in some areas now differ by covering more area and lasting longer throughout the year. For instance, in some parts of North America, Didymo produces algal blooms that spread out over ½ a mile and persist for several months even after the colony dies. Once restricted to certain environments, it appears that

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**NMED Surface Water Quality Bureau's
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Didymo is now able to tolerate a wide range of hydrological, chemical, and physical conditions. Unlike other algal blooms, Didymo can thrive in nutrient-poor waters, and invade waters without extensive human impacts.

Didymo can pose a threat to aquatic ecosystems by dominating stream substrate surfaces and altering physical and biological conditions. These habitat changes may adversely affect fish, macroinvertebrates, and aquatic plant species as well as food web interactions, stream hydraulics, and ecological processes. Didymo is not considered a significant human health risk, but is unsightly to some people especially when the stalks lengthen and turn white appearing similar to tissue paper. In addition, Didymo could have negative economic impacts by affecting tourism, fisheries, and water infrastructure.

Didymo is expanding its geographic range worldwide, but it is unclear what causes the algal bloom of stalk material, or how Didymo spreads from watershed to watershed. More research is necessary to determine the specific ecological conditions that lead to nuisance blooms and the geographic expansion of this diatom. Didymo can be spread by a single drop of water. Moreover, Didymo cells can remain viable in cool, damp, dark conditions for at least 40 days. While Didymo could be spread by wildlife, human transport is also of concern. Decontaminating equipment (particularly waders with felt soles) between use in different watersheds is key to minimizing further spread.



*Magnification (600X) of Didymo diatoms.
Micrograph by Dan Davis.*

Report Any Potential Sightings to:

New Mexico Environment Department
Surface Water Quality Bureau
505-827-2819 or danny.davis@state.nm.us

OR

New Mexico Department of Game and Fish
Conservation Services Division
505-476-8108

To prevent the spread of Didymo

CHECK:

Before leaving a river's edge, look for clumps of algae and sediment, and remove them. Leave them at the site.

CLEAN:

Soak all gear for at least one minute in a 2% (by volume) solution of household bleach, or a 5% (by volume) solution of dishwashing detergent or salt. All surfaces must be in contact with the cleaning solution for a full minute. Water-absorbent equipment (lifejackets, waders) should be soaked thoroughly to ensure complete contact.

DRY:

If cleaning is not practical, after the item is dry to the touch, leave it to dry for at least another 48 hours before using in another freshwater system.

From International fact sheet PDF sponsored by EPA and the Federation of Fly Fishers

Legislative update!

The New Mexico Legislature recently passed House Bill 467 "Aquatic Invasive Species Control" introduced by Representative Don Tripp. This legislation will provide the Department of Game and Fish and other authorized agencies with the authority to monitor, control, and prevent the spread of aquatic invasive species within New Mexico. As of press time, the bill awaits Governor Richardson's approval. For more information, see <http://www.nmlegis.gov/lcs/session.aspx?Chamber=H&LegType=B&LegNo=467&year=09>

Additional Didymo information can be found at:

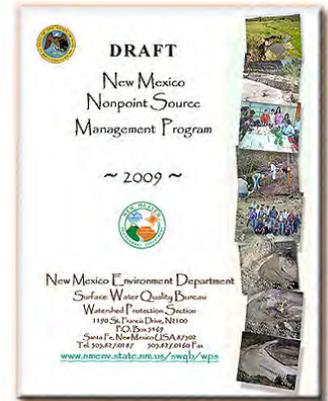
www.epa.gov/Region8/water/monitoring/didymosphenia.html
<http://www.protectyourwaters.net/>
<http://www.invasivespecies.net/database/species/ecology.asp?si=775&fr=1&sts>

Watershed Protection Section Update

Plans and Priorities - What to Expect

By Abe Franklin, Program Manager

A draft of the Nonpoint Source Management Program planning document is now available for public review at www.nmenv.state.nm.us/swqb/wps/plan. This planning document describes dynamic programs and actions to prevent nonpoint source pollution. The document outlines the plans and priorities of the Watershed Protection Section emphasizing watershed-based planning to coordinate watershed restoration efforts, foster watershed associations, and encourage partnerships among agencies, nongovernmental organizations, and the public.



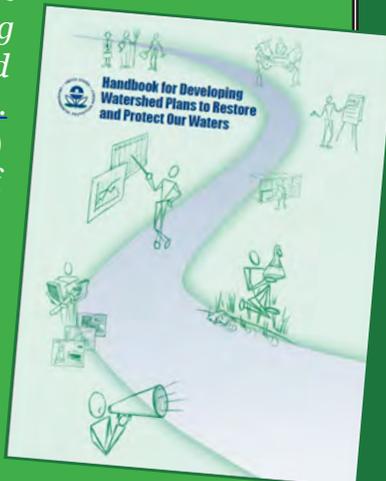
Also of interest are two requests for proposals (RFPs) for 319 grants released in late March. One RFP solicits proposals that develop new watershed plans or update existing watershed plans to include information specified in the *Nonpoint Source Program and Grants Guidelines for States and Territories* available at www.epa.gov/owow/nps/cwact.html. We anticipate that many planning projects will be relatively small, and will utilize existing partnerships and data. Each new planning project must address at least one total maximum daily load (TMDL) for an impaired water, but may also identify other actions required to protect water quality in areas already meeting standards.

The second RFP solicits proposals for on-the-ground projects that implement watershed plans focusing exclusively on meeting the goals of nonpoint source TMDLs. The RFP asks for citations of either a watershed plan or equivalent documents to support the proposed work. The ultimate goal of this new approach is to delist impaired streams. Projects funded under either RFP will require a minimum forty percent non-federal match, which may consist of cash expenditures or in-kind contributions of labor, equipment, or materials. Both RFPs also include a deadline for questions that potential applicants may submit during the RFPs. For more information, see www.nmenv.state.nm.us/SWQB/rfp, or contact any Section staff, or Abe Franklin at 505-827-2793 or abraham.franklin@state.nm.us.

For even more information...

EPA published a comprehensive *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (www.epa.gov/nps/watershed_handbook) to assist the interpretation of planning elements described in the *Nonpoint Source Program and Grants Guidelines for States and Territories*.

For a more interactive way to learn about watershed plans or actually produce one, EPA also developed an on-line watershed plan builder (<http://iaspub.epa.gov/watershedplan>).



What's a TMDL?

Total maximum daily loads (TMDLs) are developed for streams that don't meet water quality standards. SWQB staff collect data related to flow and pollutant concentrations to calculate the current pollutant "load". Then the daily pollutant load that the stream could withstand and still meet its designated uses is estimated. The difference between these loads is called the target load reduction, and is the starting point for setting goals for water quality improvement and selecting appropriate Best Management Practices (BMPs).

Cooperator Spotlight

Comanche Creek Working Group

By Abraham Franklin, Watershed Protection Section Program Manager

A collaborative stakeholder group has been working to improve water quality and watershed condition within the Comanche Creek Watershed. This working group has involved the Albuquerque Wildlife Federation, Amigos Bravos, Boy Scouts of America, Carson National Forest-Questa Ranger District, Earth Friends Wildlife Foundation, Environmental Protection Agency, Gallup Youth Conservation Corps, Great Old Broads for Wilderness, New Mexico Community Foundation, New Mexico Department of Game & Fish, New Mexico Environment Department, New Mexico Hotshots, New Mexico Trout, New Mexico Wilderness Alliance, Public Service Co. of New Mexico, Rocky Mountain Youth Corps, Santa Clara Pueblo Fire Crew, Sierra Club Service Team, Skylark Foundation, Taos Soil and Water Conservation District, The Quivira Coalition, Trout Unlimited – Truchas Chapter, and Valle Vidal Coalition as well as other groups and individuals. Together, they carried out a series of 319 projects titled “Comanche Creek Watershed Restoration Project—Restoring Habitat for the Rio Grande Cutthroat Trout parts I & II.” “A diversity of groups with a long term commitment to the Comanche Creek watershed has been integral to restoration success,” says Tamara Gadzia, Organization Director of the Quivira Coalition and principal coordinator for the 319 projects.

Comanche Creek is located within the Upper Rio Grande watershed high in the Sangre de Cristo Mountains in north-central New Mexico. From its headwaters at 10,400 feet in elevation, Comanche Creek flows north for 11.8 miles before merging with Rio Costilla at 8,940 feet. The Comanche Creek watershed encompasses nearly 43 square miles with the valley bottoms and lower slopes mostly consisting of grassland and sedge meadows, and the upper slopes mostly composed of spruce-fir subalpine forest. The entire Comanche Creek watershed lies within the Valle Vidal Management Unit of Carson National Forest, which was transferred from the Vermejo Park Ranch to the US Forest Service in 1982. “The Valle Vidal had been hard used,” says Courtney White, executive director of The Quivira Coalition, “Much of the West’s recent history, in fact, could be read into the condition of the property at the time of its transfer to the Forest Service in 1982: massive overgrazing by cattle, widespread scars from logging and road-building, and the ‘bleeding’ effects of a historic gold mining district.”

The highly degraded state of the Comanche Creek watershed was evident by the raw and unstable streambanks, poorly designed and maintained roads, and overgrazing by cattle and elk preventing the growth of riparian trees; all of which contributed to excessive sediment loads and high water temperature. The overall goals of the stakeholder group are to improve the condition of the Comanche Creek watershed to meet current water quality standards; restore normal hydrologic function; and enhance habitat for the Rio Grande cutthroat trout as well as other wildlife species. Improved watershed condition will also



Some cooperator logos

“A diversity of groups with a long term commitment to the Comanche Creek watershed has been integral to restoration success.”

-Tamara Gadzia

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form the basis for sustainable economic use and provide additional recreational opportunities. For the 319 projects, the working group addressed the sediment and temperature impairments in Comanche Creek by utilizing a cost-effective, bioengineering approach. These bioengineering Best Management Practices (BMPs) included strategically placed mini-exclosures to permit colonization of willows and cottonwoods and reduce bank trampling; in-stream structures (e.g. post vanes and baffles) to direct flow away from eroding banks and to encourage vegetative growth; upland erosion control structures (e.g. One Rock Dams and Zuni Bowls) to slow water, collect sediment, and stop headcut progression in side drainages; and road drainage and culvert improvements to properly direct runoff to appropriate areas. These structures accelerate and assist natural recovery processes which could take decades.

During the course of the 319 projects, the Comanche Creek Working Group has gained valuable knowledge applicable to other watershed projects. Outdoor classrooms, on-the-ground workshops, volunteer work weekends, interpretive signs, and publications communicated to a broad audience the vital roles that soil, water, and plants play in ecosystem functioning. The amount of public involvement has been immense. For the second 319 project alone, over 300 volunteers contributed 3,657 hours of their time implementing the restoration design developed by numerous restoration professionals including Zeedyk Ecological Consulting, Dryland Solutions, Rangeland Hands, Steve Vrooman Restoration Ecology, and Stream Dynamics.



Zeedyk and workshop participants evaluate gully treatments

What about the fish? The Rio Grande cutthroat trout is New Mexico's state fish, and was once common in high elevation mountain streams in northern and central parts of the state. The species has since been reduced to isolated tributaries due to habitat degradation, predation and competition from exotic species, and hybridization. The entire Comanche Creek has the potential to once again be a productive high quality cold water fishery. As a result of the working group's efforts, canopy cover has generally increased in only a few years to spread shade on the stream. Preliminary measurements indicate that average stream width, another major determinant of temperature loading, may have decreased by as much as one foot (about 18%) between 2000 and 2007. Thermographs will be deployed in Comanche Creek this year to assess whether the stream is now meeting its temperature standard. "It is important to revel in such signs of renewal," says Courtney White, "The Valle Vidal, with its legacy of hard use hopefully finished forever is now writing a new, more hopeful chapter—a chapter employing the language of land health and healing."

These efforts are continuing with a recent RERI grant. For more information, please see the Comanche Creek project website at <http://www.comanchecreek.org/>



Rio Grande cutthroat trout

Photo from the Western Native Trout Initiative

**"It is important to revel in such signs of renewal."
-Courtney White**



Volunteers constructing a post vane to stabilize an eroding bank

Wetlands Program Update

New Wetlands Project Grants Awarded

By Maryann McGraw, Wetlands Program Coordinator

Four new federal grants totaling \$1,036,113 in federal assistance have been awarded to the SWQB Wetlands Program through the FY08 EPA Wetlands Protection Development Grant Program. The project funds are for the “La Cienega de San Vicente Wetlands,” “Restoring and Protecting Wetlands in Cebolla Canyon Closed Basin,” “Curry County Playas Restoration and Protection,” and “Rapid Assessment for New Mexico Wetlands - Upper Rio Grande Phase 2” projects. All of these projects will be conducted with multiple community and agency cooperators. In addition, each on-the-ground project will develop or update a Wetlands Action Plan as an addendum to the local Watershed Restoration Action Strategy (WRAS).

FY08 EPA Wetlands Protection Development Grants
Project Locations in New Mexico



La Cienega de San Vicente south of downtown Silver City

The “Restoring and Protecting Wetlands in Cebolla Canyon Closed Basin” project will restore natural wetlands degraded by former agricultural practices primarily within the Cebolla Wilderness near Grants, New Mexico. SWQB will partner with the Bureau of Land Management, Rio Puerco Alliance, Rio Puerco Management Committee, Albuquerque Wildlife Federation, New Mexico Wilderness Alliance and other partners to restore historic wetlands by more than 80 acres. Workshops will be conducted on the restoration field methods. Project partners will also organize a Watershed/Wetlands Academy for students and teachers in the Grants area with special emphasis on local and tribal schools.

The Wetlands Program is partnering with the Town of Silver City, the Gila Conservation Education Center, Western New Mexico University, and other partners to conduct the “La Cienega de San Vicente Wetland” project. This project will survey, restore, and protect more than thirty acres of degraded riverine wetlands known as La Cienega de San Vicente creating a novel restoration demonstration. The project will increase understanding of critical natural habitats, demonstrate methods to determine the state of riverine wetlands, provide guidance for restoration of similar degraded wetlands in the arid southwest, and communicate the importance of wetland functions and protection strategies.



Aerial view of Cebolla Springs wetland

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The Nature Conservancy, Natural Resources Conservation Service, City of Clovis and the SWQB Wetlands Program will collaborate to conduct demonstration playa restoration and conservation measures within the Southern High Plains Ecoregion of Eastern New Mexico. Project partners will work with landowners and ranchers to restore and protect more than sixty acres of playa wetlands and buffer areas. These playas and buffers will be targeted for development of playa watershed management plans where landowners will be offered innovative incentives for protecting their playas. Project partners will also work with the City of Clovis to develop a plan for playa conservation, education and outreach using playas within the Clovis city limits as models. Project partners are also planning a Water and Wetlands water festival in the Clovis area with special emphasis on local school participation. Southern High Plains playas are the primary source of recharge water for the Ogallala Aquifer and are the region's most important wetland habitat for supporting wildlife, including ducks, shorebirds and other migratory and resident birds.



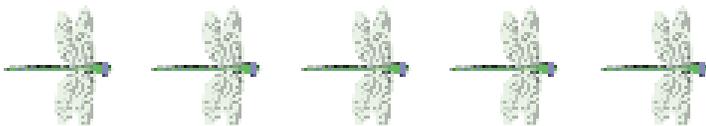
*Playa being used by thousands of waterfowl.
Photo courtesy of Ducks Unlimited.*



*Typical study site for rapid assessment of riverine wetlands in the Upper Rio Grande watershed in New Mexico.
Photo by Dr. Ric Hauer, Flathead Lake Biological Station*

Currently, the SWQB Wetlands Program is in the process of development and implementation of the "Rapid Assessment for New Mexico Wetlands," with a focus on riverine wetlands in the Upper Rio Grande watershed as the geographic reference domain. The Rapid Assessment for New Mexico Wetlands - Upper Rio Grande Phase 2 project continues the second phase which includes process refinement and data analyses. In addition, validation of the rapid assessment methods and metrics will occur in year two of the project.

Visit the New Mexico Wetlands
Program website at:
www.state.nm.us/SWQB/wetlands



ANNOUNCEMENTS

- April 8th, 2009** - 319 RFP Public Meeting. City Hall Annex, Downstairs Meeting Room, 1203 N. Hudson, Silver City. 6–8 pm
- April 9th** - 319 RFP Public Meeting. Las Cruces City Hall, Council Chambers, 200 N. Church St., Las Cruces. 6–8pm
- April 13th** - 319 RFP Public Meeting. Vadito Community Center (look for sign on HW 75, north of bridge in Vadito), Vadito. 6–8pm
- April 14th** - 319 RFP Public Meeting. New Mexico Environment Department District 1 Office, 5500 San Antonio Dr. NE, Albuquerque. 6–8pm
- April 17-19th** - Albuquerque Wildlife Federation, Cebolla Canyon Restoration Weekend. Volunteers welcome. <http://abq.nmwildlife.org>
- April 19th** - Upper Gila Watershed Alliance, 2nd Annual Dinner Party and Benefit Auction. Cliff, NM. Email director@ugwa.org
- April 24-25th** - Quivira Coalition. Rangeland Health and Planned Grazing Workshop. Taos, NM. www.quiviracoalition.org
- May 1-3rd** - Quivira Coalition. Ecological Restoration Practitioner's Workshop. Red Canyon Preserve near Socorro, NM. www.quiviracoalition.org
- May 13-14th** - 6th Annual Gila Water Festival. Grant County, NM Contact the Gila Conservation Education Center <http://gcecnm.org>
- May 18th** - San Juan Watershed Group meeting. Farmington Civic Center, Farmington, NM. 6-8 pm
- May 30th** - Santa Fe River Cleanup Day, 10am - 1pm. www.santafewatershed.org/
- June 6th** - Third Annual Santa Fe River Festival and Fishing Derby. 10am – 3pm www.santafewatershed.org/
- June 15-19th** - NM Department of Transportation, Wetland Delineation Training. Contact Lori.Walton@state.nm.us
- June 19-21st** - Albuquerque Wildlife Federation, Rio de las Vacas Restoration Weekend. Volunteers welcome. <http://abq.nmwildlife.org>



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