



CONSERVATION

A Newsletter Published by the New Mexico Water Conservation Alliance

APS Students Plant Xeriscape Garden

Cheri Vogel, N.M. Office of the State Engineer (OSE), Water Use and Conservation Bureau



A plain school campus is suddenly beautiful, thanks to students from Albuquerque Public School's School on Wheels Program, who designed and implemented a xeriscape project at the school's main campus.

Beginning in August, the students planned the water and wildlife friendly habitat using the OSE's *Learning to Xeriscape* curriculum and the Dunn Foundation's View-Finders Too program to guide their design. Under

student leadership, community volunteers, School on Wheels students and staff, and conference participants from the North American Association of Environmental Education (NAAEE) spent three days installing the garden.

"This is a prime example of how the OSE's water conservation curriculum is making a difference in the state," said Water Use and Conservation Bureau Chief John Longworth. "Through this xeriscaping project, the students were able to gain a better understanding of the environment and landscape design enhancement projects."

School on Wheels is an alternative high school that helps students focus on self-awareness, resilience, responsibility, teamwork, and community and family orientation.

"Our students at School on Wheels are often motivated when they have the opportunity to become leaders in their

communities," said School on Wheels teacher Vince Case. "On the first day of school this year, students were excited to have this chance to plan a community service project for adults."

Funding for the beautification project included grants from the Dunn Foundation, Public Service Company of New Mexico, and local community members.

NAAEE is a network of professionals, students, and volunteers working to promote excellence in the field of environmental education around the world. Its annual conference was held in Albuquerque the last week in October (see article this issue). This project carries on an NAAEE tradition allowing conference attendees to make meaningful contributions to host cities.



Views from the River Front

During the spring and summer of 2004, the Texas Cooperative Extension Service surveyed officials and staff in 30 Rio Grande Basin cities—22 in Texas and 8 in New Mexico—about water conservation strategies. The survey—called a preference-feasibility analysis—first asks for the respondents' preferences for 15 strategies, and then for their ranking of the feasibility of the same 15 strategies, both on a 5-point scale.

The top three most-preferred and most-feasible strategies were: 1) encourage drought-tolerant landscapes, 2)

public education campaign, and 3) residential water audits.

One interesting result is that for elected officials, increasing the price of water ranks dead last of the 15 choices; but for municipal staff, pricing ranked much higher: 9th on preference and 4th on feasibility.

The publication can be found at <http://tcebookstore.org/pubsearch.cfm> where it is available for download as a pdf, or in hard copy for \$5.00. Look for Views from the River Front: Rio Grande Decision Makers Rank Water Conservation Strategies.



Teaching Sustainability

Albuquerque Hosts International Environmental Education Conference

Cheri Vogel, N.M. Office of the State Engineer, Water Use and Conservation Bureau

About 900 people from around the world came to Albuquerque between October 24-29, for the 34th annual conference of the North American Association for Environmental Education (NAAEE). The conference offered many avenues to explore the links between sustainability and environmental education.

Internationally-lauded business leader Peter Senge, founder of the Society of Organizational Learning and a senior lecturer at the Massachusetts Institute of Technology, talked about partnerships between businesses and environmental educators through their mutual interest in systems thinking, which means looking at how things evolve over time. Using concrete examples, he showed that even small children can be taught the basic principles of systems thinking.

Writer Janine Benyus' illustrations of biomimicry were equally inspirational. Biomimicry happens when one organism takes on the characteristics of another for survival, such as when a nonpoisonous butterfly looks like a poisonous one to avoid being eaten.

A self-described "nature nerd," Benyus showed colorful photographs of many wonders of nature. Each organism has lessons for us about how to make modern products in new, less toxic, ways. Benyus identified the companies that are implementing those lessons.

Learning experiences were presented in a variety of formats, all exploring how environmental education can impact our society, environment, economy, and global responsibilities. Topics ranged from natural resource issues and sustainable design to education research and pedagogy. Many educators came from Mexico and Puerto Rico, and translators were on hand for many of the sessions.

The conference was not all work. On field trips to Bandelier National Monument, Bosque del Apache, Sandia Natural History Center, and the Earth Works Institute, participants got a firsthand account of their colleagues' management and outreach efforts.

Local conference partners included the Environmental Education Association of New Mexico, the NM Office of the State Engineer, WERC, Los Alamos National Lab, Albuquerque Bernalillo County Water Utility Authority, and others.

Being chosen to host this annual professional event adds to Albuquerque's reputation as an environmentally-friendly location to live and do business.

NAAEE is a supportive community of people who care passionately about improving both education and the environment. A special 'thank you' goes out to all the local sponsors, committee members, and volunteers that assisted in this huge undertaking. We hope that those who attended got as much out of it as we did.

Next year's conference is scheduled for St. Paul, Minnesota, on October 10-14, 2006.

Feb 5-8, 2006

AWWA Water Sources Conference and Exposition • Albuquerque, NM

Water industry professionals from around the world gather to discuss important issues regarding conservation and water resources.

<http://www.awwa.org/conferences/sources/>

Feb 23-24, 2006

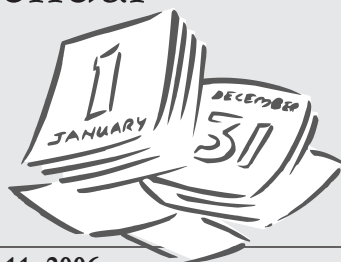
Efficient Water Use in the Urban Landscape Symposium • NMSU Golf Course & Corbett Center, Las Cruces, NM

Speakers on landscape irrigation, ornamental plants for moisture-limited landscape, socio-horticulture in the urban landscape, and urban landscape policy and ordinances.

Abstract deadline is January 4, 2006.

<http://www.cahe.nmsu.edu/calendar/> or contact Jeanine Castillo, conference coordinator at rjeanine@nmsu.edu, (505) 649-0501.

Calendar



March 9-11, 2006

11th Xeriscape Conference & Expo Albuquerque Convention Center Albuquerque, NM

As always, a rich array of authors, scientists, gardeners and wits.

See www.xeriscapenm.com for details.

March 27-30, 2006

Rio Grande Basin Initiative's 5th Annual Conference • Ruidoso, NM

See <http://riogrande.tamu.edu/> for updates.

Winter/Spring, 2006

Water Management for the 21st Century El Paso, TX & Carlsbad, NM

Offered by UNUM-NFP, this electronic seminar-style workshop covers issues of water-conservation and water-quality facing water source and delivery systems within 200 miles of the US-Mexico border. Meeting one Saturday a month for 4 months, the course involves regular use of the computer and the internet for extended classroom participation. Students meet in both classroom and field sessions from 9am to 4pm. Fee is \$59 or \$45 by pre-registration online.

El Paso, TX: El Paso Community College Valle Verde Campus, Jan. 28, Feb. 18, Mar. 25, and Apr. 22.

Carlsbad, NM: NMSU Campus, Feb. 4, Mar. 11, Apr. 1 and May 13.

See <http://www.unum-nfp.org/> for details/register.

The Alliance Takes a Turf and Tree Tour

Before the Sept. 9th Alliance meeting at New Mexico State University in Las Cruces, Bernd Leinauer, NMSU's cooperative extension turfgrass specialist, and Rolston St. Hilaire of the Dept. of Agronomy and Horticulture, gave Alliance members a tour of their cutting-edge research on turfgrass and drought-tolerant trees.

Turfgrass Research

There are two kinds of turf: warm- and cool-season grasses. If grass turns brown in the winter, it's a warm-season grass. Cool-season grasses come from wetter climates and are green year-round. Dr. Leinauer says he is on a mission to boost the use of warm-season Bermuda grass varieties in New Mexico because, on average, these varieties use 30 % less water in a typical home lawn than tall fescue, a cool-season grass.



Professor St. Hilaire and John Longworth of OSE's Division of Water Use and Conservation

The turf site at NMSU's golf course is laid out in 5-by-5 foot plots like a giant checkerboard. On these plots, Leinauer is conducting side-by-side trials of 21 different grasses for their response to irrigation with poor-quality water. Some squares are lush green, others are a little frayed, and some are downright ratty.

Using low-quality water

"Landscape irrigation in New Mexico is moving away from potable water," Leinauer says. "Our only other sources are

low-quality ground water and effluent. Both are high in salts." Some of the plots are irrigated with water with a high salt load, others with potable water, and still others with a 50/50 mix. Many turf grasses did poorly with the saline water. Some warm-season grasses—Bermuda and zoysia-grass—did well, as did seashore paspalum, a new salt-tolerant grass found on coastal Hawaiian golf courses.

Pricey but promising

At the Fabian Garcia Research Center, Leinauer and his colleagues have built what they call a rolling green, a 41,000-square-foot series of irrigated plots. The project is funded by NMSU's Experiment Station, the U.S. Golf Association, Toro Co., and the Rio Grande Basin Initiative.

Some plots are sprinkler-irrigated; others have a subsurface drip irrigation system. Still other plots are underlain by drain tiles, buried a foot below the surface. Water is injected into the tiles and wicks up to the surface.

"Over a year's time, [the subground] system used 50 % less water than our traditional sprinkler system. During the hottest part of the summer, it used about 80% less water," Leinauer said. Installation is double the cost of a conventional sprinkler system. These are specifically targeted to new construction. "This isn't something that can be easily retrofitted," Leinauer said. "You really have to start from scratch."

A Maple for New Mexico

Fabian Garcia is also home to Rolston St. Hilaire's experiments on drought-tolerant shrubs and trees. Professor St. Hilaire is working on developing a maple that will grow readily in New Mexico with limited water.



Bobby Creel, Bernd Leinauer, graduate student Casey Johnson, and Dan Ransom at NMSU Golf Course

His Bigtooth maple variety is one of the brightest of maples. It grows naturally in parts of NM and Texas, but only where there is ample water. To isolate the best performers under New Mexico's hot, dry conditions, seeds were collected from 36 southwestern locations, germinated and grown, and the best performers were established in greenhouses and field plots.

The maples proved difficult to propagate, and St. Hilaire developed the first tissue-culture protocol to propagate these high-performance drought-tolerant maples successfully.

The Weight of Water

In St. Hilaire's other experimental plots, shrubs and trees grow in pots laid out in a 3-4 inch gravel bed that mimics the plant mix in a xeriscaped yard. The pots allow the plants to be weighed daily to keep track of water use. Victoria Frietze, a graduate student in agronomy and horticulture, maintains this xeriscape experiment.



Victoria Frietze, graduate student in agronomy and horticulture

New Mexico Water Conservation Alliance

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Lessons in Water Sustainability

- Find a way to say what water is worth. Water, especially ground water, is seriously undervalued.
- Balance protection of property rights with the public interest.
- Focus on long-term goals and incremental achievements.
- The key to sustainability is conversion to renewable supplies.
- Manage surface and ground water conjunctively.
- Long-term management requires consensus.
- Balance regulatory flexibility vs. complexity and enforceability.
- Take care! Short-term policies can become “entitlements.”
- A State framework with local implementation has worked for Arizona because:
 - the “bad guys” are at a distance, in State agencies.
 - local politics can get personal.
 - it helps to have state resources to support the system.
 - it facilitates equity between jurisdictions.
 - local implementation means local input and perspectives will be taken seriously.
- Hydrologic management boundaries are preferred to political boundaries.
- Good management requires investment!
- Connect drought planning to long-term water supply planning... and
- Connect long-term water supply planning to land use decisions (Arizona did this by requiring new subdivisions within Active Management Areas to show an Assured Water Supply in order to get a permit.)



From Kathy Jacobs' provocative talk at the October 6th Drought Summit.

Jacobs was first a Water Resources Specialist and eventually Director of the Tucson Active Management Area between 1981 and 2001. She led the development of Arizona's drought plan from 2002-2003. She is presently Deputy Director of SAHRA, the NSF Center for Sustainability of Arid Region Hydrology and Riparian Areas, and an Associate Professor at the University of Arizona.