



Breaking news about water resources research and education at Texas universities

May 31, 2007

TAES El Paso receives award

The [Texas Agricultural Experiment Station](#) in El Paso received the state's highest environmental achievement: a 2007 Texas Environmental Excellence Award in Agriculture. The award was presented by the Texas Commission on Environmental Quality at its May banquet in Austin.

The award was given for bacterial source tracking research by **Dr. George Di Giovanni** and his research team; **Dr. Elizabeth Casarez** of El Paso, **Dr. Suresh Pillai** of Texas A&M -College Station and **Dr. Joanna Mott** of Texas A&M-Corpus Christi.



Dr. George D. Di Giovanni and Dr. Elizabeth Casarez accept the 2007 TEE Award.

Using water samples from Lake Waco, Belton Lake, the San Antonio River, Salado Creek, Leon River and Peach Creek, the research team used DNA fingerprinting to determine the source of *E. coli* contaminating the waters. They found the most likely cause to be wildlife fecal matter, followed by cattle and then human waste.

"By pinpointing the sources of pollution, this research enables resource managers to develop effective pollution control strategies to ensure water is drinkable and safe for all users," said **Dr. Ari Michelsen**, El Paso resident director.

The team also created a genetic library of over 11,000 samples of *E. coli*, which may save millions of dollars on future source tracking projects, according to Michelsen.

A finalist for the award was TWRI's Rio Grande Basin Initiative. This project was nominated in the agricultural category for its efforts toward efficient irrigation for water conservation in the Rio Grande Basin. Many innovative technologies have been implemented as a result of RGBI that have helped water conservation efforts.

The awards, created by the Texas Legislature in 1993, honor individuals, businesses and organizations that have created successful programs that conserve natural resources, reduce waste and prevent pollution.

For more information, go to the El Paso Center's [Web site](#).

Joint Rio Grande conference highlights projects' activities

The sixth annual joint Rio Grande Basin Initiatives Conference was held May 15-17 at South Padre Island, Texas, with 170 attendees—the largest number since the conference began. Project participants made presentations highlighting their project efforts and results. The conference served as a time where members of Texas and New Mexico Agricultural Experiment Stations and Cooperative Extension and the Texas State University System projects could be brought up-to-date on the efforts of other project members. This meeting also provided time for members of the various universities and agencies to visit with one another and discuss possible future collaborations.

The conference ended with a four-stop field tour on Thursday afternoon. Sites visited included Cameron County Irrigation District No. 2 pump plant, the Southmost Desalination Facility, the Seawater Desalination Pilot Plant and the Agricultural Demonstration Initiative.

Later in June, the conference power points and wrap-up information will be posted at <http://riogrande-conference.tamu.edu/>.

Texas Urban Landscape Guide Web site launched

Texas Cooperative Extension, Texas Nursery and Landscape Association and Texas Water Development Board (TWDB) recently cooperated in developing a Texas Urban Landscape Guide. The guide, and its accompanying [Web site](#), is a resource of science-based information on the design, installation and maintenance of WaterWise landscapes in Texas.

A WaterWise landscape is defined as a landscape designed and maintained according to basic good horticultural principles that allow for a beautiful healthy landscape with minimal supplemental irrigation and no adverse runoff from the landscape property.

Dr. Don Wilkerson, Extension horticulturist and one of the developers of the urban guide, said the guide targets three audiences—homeowners, horticulture professionals and municipal government and water utility personnel—with different tracks of information for each audience. Each track contains resources and links to different Web sites with specific information for the target audiences, he said.

“The type of information needed to implement WaterWise landscape practices varies considerably depending upon whether you are a homeowner looking for information to design your home landscape, a green industry professional seeking information of a specific nature for a business application, or a municipal water management agency employee needing specific guidelines related to urban landscape water use,” Wilkerson said.

One of the guide’s main components, and common to all three tracks, is the PlantSelector database that rates 1,000 plants using the EarthKind™ Index. EarthKind™ is the environmental stewardship program developed by Extension Horticulture to combine the best of organic and traditional gardening and landscaping principles to create a horticultural system based on real world effectiveness and environmental responsibility.

The index, with ratings of 1 to 10, evaluates plants on their drought tolerance, heat tolerance, pest tolerance, soil requirements and fertility requirements for seven regions in Texas, Wilkerson said. The higher the index, the better suited the plant is to the selected region. The plants were rated by 20 experts knowledgeable about the best plants for their regions.

Users of PlantSelector enter their zip code and select various attributes of plants they need or want, such as exposure, bloom period and leaf characteristics. The PlantSelector will then produce a list of plants suitable to their region. Users can also enter a specific plant to see its characteristics and determine if it is suited for their regions.

"We don't want to tell the consumers what to buy," Wilkerson said. "We want to provide them with educational information to make informed decisions."

Wilkerson said The Urban Landscape Guide Manual, downloadable from the Texas Urban Landscape Web site, supplements the Water Conservation Best Management Practices Guide 2004 that was produced by the Texas Water Conservation Implementation Task Force as directed by TWDB. The manual, written by consultant Chris Brown, is designed to assist municipal water utilities in implementing best management practices.

TWRI grant recipient studies nutrient dynamics in created wetlands

Thad Scott, a graduate student at Baylor University studying biology and a recipient of a 2005-2006 TWRI research grant, researched how hydrology and biogeochemical mechanisms govern the spatial distribution of nutrients in a freshwater wetland.

Scott, advised by **Dr. Robert Doyle**, sought to connect microbial ecology and nutrient biogeochemistry to quantify how spatial patterns of nutrient availability impact ecosystem functions such as microbial and plant growth. Scott examined the role of nitrogen-fixation in balancing nitrogen supply to a wetland microbial mat.

Wetlands frequently serve as a filter for freshwater, purifying the water of harmful contaminants and even reducing elevated nutrients. Wetlands are often used as sinks for nitrogen and phosphorus, which can deteriorate surrounding aquatic ecosystems, such as streams and lakes, by accelerating their natural aging process.

According to Scott's research, microbial mats, a matrix of filamentous algae, diatoms and other microorganisms, rapidly assimilates phosphorus from the water column at low-to-moderate levels of enrichment. The mats can also rapidly fix and accumulate significant amounts of atmospheric nitrogen, keeping nitrogen and phosphorus in balance with the demand from microbial growth. High levels of phosphorus, however, cause microbial mats to break up and disappear.

For his research, Scott received first prize in the student paper competition for the Society of Wetland Scientists (SWS) South Central Chapter Meeting in 2005. The prize included paid travel expenses to the SWS 2006 International Congress in Cairns, Queensland, Australia.

Scott completed his doctorate in 2006 and is currently a postdoctoral research associate in the Department of Ecology, Evolution, and Behavior at the University of Minnesota.

For the full report of Scott's research, [click here](#).

Ranchers helping improve Trinity River

Dr. Jim Cathey, a Texas Cooperative Extension wildlife specialist, and a visiting team of ecologists and researchers from Extension visited the Richland-Chambers wetlands this spring on a tour of the Trinity River. They set out on the three-day journey to examine rural landowners' efforts to improve the river.

This trip was just one of many research and educational efforts resulting from **Gov. Rick Perry's** Trinity River Basin Environmental Restoration Initiative, announced in September 2006. Two units of The Texas A&M University System are leading the river's restoration initiative. The TWRI is coordinating [urban projects](#). The Institute for Renewable Natural Resources is managing [rural efforts](#). Both entities are units of the Texas Agricultural Experiment Station and Extension.

For the full AgNews story, [click here](#).

TWRI requests Mills Scholarship applications

TWRI is still accepting applications for the 2007-2008 TWRI Mills Scholarship Program. This program, funded by the W.G. Mills Memorial Endowment, provides funds to graduate students in diverse disciplines pursuing research in water-related studies at Texas A&M University.

TWRI anticipates funding 15 graduate students with one-year \$1,500 scholarships payable at the beginning of the 2007-08 academic year. The deadline for submission is June 19, 2007. For more information, contact Cecilia Wagner, Cecilia@tamu.edu, 979.458.1138.

New Mexico Water Research Symposium set

The [New Mexico Water Resources Research Institute](#) is accepting abstracts for its 2007 New Mexico Water Research Symposium, scheduled for Aug. 14 in Socorro, New Mexico. The deadline for submitting abstracts for posters or presentations is July 6.

Abstracts related to any water research and management topics will be considered and must be submitted online via the New Mexico Water Resources Research Institute's homepage.

The symposium will cover a variety of topics such as water and wastewater treatment and reuse, erosion and sediment control and reservoir evaporation. The symposium will be at the Macey Center at New Mexico Tech University. Registration deadline is August 3, and the registration fee is \$20. The registration fee will be waived for presenting students.

For more information, go to the [WRRI website](#).

Nonpoint Source Monitoring Workshop scheduled in Austin

The [Texas Commission on Environmental Quality](#) and Texas State University's [River Systems Institute](#) are sponsoring the [15th National NPS Monitoring Workshop August 26–30](#) at the Driskill Hotel in Austin. The workshop will focus on national as well as local and regional water monitoring conditions.

The theme for the workshop is "Monitoring for Decision Making," and will include seminars on NPS pollution and karst aquifers; detecting change in water quality from BMP implementation; modeling applications for NPS pollution and control strategies; integrating social indicators

monitoring with environmental monitoring; nonpoint source pollution; TMDLs; and river restoration projects.

New Publications/Papers

"Water Balance, Salt Loading, and Salinity Control Options of Red Bluff Reservoir, Texas"

S. Miyamoto, Fasong Yuan and Shilpa Anand, TWRI publication TR-298.

Red Bluff is the main reservoir of the Pecos River in Texas. Aside from the shortage of water entering the reservoir, high salinity has been a concern. This report was prepared to: i) outline water balance of the reservoir, ii) establish salt loading trends over the past several decades, and iii) evaluate the impact of salt loading on salinity of the reservoir and its outflow. We also outlined the needs for salinity control, and briefly discussed salinity control options.

"Watershed Protection Plan Development for the Pecos River"

J. Villalobos, Z. Sheng and C. Hart, TWRI publication TR-300.

To develop a successful watershed protection plan for the Pecos River, it is very important to correctly characterize the river basin including vegetation coverage, river channel and others. This report discusses procedures for data processing and mapping, and presented images produced.

"Economic, Hydrologic and Environmental Appraisal of Texas Inter-basin Water Transfers: Model Development and Initial Appraisal"

Y. Cai and B. A. McCarl, TWRI publication TR-301.

Water scarcity is becoming a pervasive and persistent problem in Texas particularly in the drier regions containing cities like San Antonio, Austin and Corpus Christi while growth causes emerging problems in Dallas, Fort Worth and Houston. A number of options are being considered including Inter-basin water transfers (IBTs) shifting water from surplus to deficit regions.

"Xeriscape...Landscape Water Conservation"

Douglas F. Welsh, William C. Welch and Richard L. Duble, Extension publication E-447.

You can make your landscape both beautiful and water-efficient by xeriscaping. Topics covered include planning, soil preparation, plant selection, maintenance, watering, irrigation systems, mulching and mowing. There are lists of outstanding landscape plants for Texas, with native plants highlighted. This publication is a must for the serious Texas gardener.

"News Waves," an email newsletter of Texas Water Resources Institute publishes timely information about water resources news, results of projects and programs, and new water-related research projects, publications, papers and faculty, at universities in Texas. If you have information for possible inclusion in "New Waves" please e-mail items to kwythe@tamu.edu or 979.845.1862 and include your contact information. All submissions may be edited for grammar and style.