

# Rio Grande Basin Initiative

# OUTCOMES

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For these and other stories, please visit:  
<http://riogrande.tamu.edu>

# Joint Conference Set for March 27-30

## Experiment Stations, Extension meet with other Rio Grande Initiatives

by  
Jennifer Gipson



The Joint Rio Grande Basin Initiatives Annual Conference will take place in Ruidoso, NM from March 27 through 30, 2006 at the Ruidoso Convention Center. This conference draws together three Rio Grande Basin Initiative Projects, which are the

Efficient Irrigation For Water Conservation in the Rio Grande Basin (Texas and New Mexico Agricultural Experiment Stations and Cooperative Extension), Physical Assessment Project (University of Texas) and the Sustainable Agricultural Water Conservation in the Rio Grande Basin (Texas State University System) to share ideas, information and program impacts related to water research and Extension. Conference information, as well as the registration form, can be found on the joint conference Web site at <http://riogrande-conference.tamu.edu>.

The conference fee for early registration postmarked prior to February 24, 2006, is \$115.00, and \$135.00 for registration received on or after February 24, 2006. Hotel reservations can be made at the Hawthorn Suites (505-258-5500 or 1-866-211-7727), Comfort Inn (505-257-2770 or 1-866-859-5146) and Holiday Inn Express (505-257-3736 or 1-800-257-5477). Mention the RGBI/Rio Grande Conference to receive the conference rate for your hotel room.

For those who like to golf, the "6<sup>th</sup> best course in New Mexico" ranked by "Golf Digest Magazine" is right next door to the Hawthorn Suites and Ruidoso Convention Center.

Registration is under way, and the form and mailing address can be found on the joint conference Web site.

### *Efficient Irrigation for Water Conservation in the Rio Grande Basin*

Texas and New Mexico Agricultural Experiment Stations and Cooperative Extension

Texas A&M University System  
<http://riogrande.tamu.edu>

New Mexico State University  
<http://spectre.nmsu.edu/riogrande/welcome.html>

### *Sustainable Agricultural Water Conservation in the Rio Grande Basin*

Texas State University System

<http://www.sulross.edu/pages/4624.asp>

### *Physical Assessment Project*

University of Texas - Austin

<http://www.cwrw.utexas.edu/riogrande.shtml>  
<http://www.riogrande-riobravo.org/>



Photos courtesy of Danielle Supercinski

# RGBI Team Receives Partnership Award

by  
*Danielle Supercinski*



*Photo courtesy of Mark Beal*

The Rio Grande Basin Initiative (RGBI) team received the Vice Chancellor's Award in Excellence for Industry-Agency-University-Association Partnership Jan. 10, at the 2006 Texas A&M Agriculture's Awards Convocation.

Dr. Elsa Murano, Texas A&M University System vice chancellor and dean of agriculture and life sciences, presented the partnership award to the RGBI team for working with numerous individuals, groups, organizations and agencies to reach the goals and objectives originally set forth for the project.

Primary partners chosen to represent this team include: Edmund Archuleta, El Paso Water Utilities; Dr. B.L. Harris, Texas Water Resources Institute

associate director in College Station; Sonny Hinojosa, Hidalgo County Irrigation District No. 2 general manager; Michael Irlbeck, U.S. Bureau of Reclamation special projects director in Austin; Dr. Allan Jones, Texas Water Resources Institute director in College Station; and Craig Runyan, New Mexico State Cooperative Extension.

These team members were selected as primary representatives from the numerous partners and approximately 160 participants of the Rio Grande Basin Initiative as a whole.

Together all of these groups and participants work towards the common goal of efficient irrigation for water conservation in the Rio Grande Basin.

## Symposium to be held Feb. 23-24 NMSU conference on efficient water use in urban landscapes

by  
*Jennifer Gipson*

The Rio Grande Basin Initiative, in partnership with New Mexico State University, will be co-sponsoring the first annual "Symposium on Efficient Water Use in the Urban Landscape" in Las Cruces. The symposium will be held February 23 and 24, 2006, on the New Mexico State University campus. Rolston St. Hilaire is the conference chairman and is working along side Jeanine Castillo on coordinating the event.

The goal of the symposium is to provide opportunities for water and landscape professionals to share their knowledge and scientific methods. A focus of the conference will be to update and identify methods by which to increase the efficiency of water use in the urban landscape. Another goal of the symposium is to compile and publish a proceedings publication. More information on the "Call for

Papers" can be found on the conference Web site at <http://spectre.nmsu.edu/water>.

The keynote speaker for the conference will be David Zoldoske, who works for the Center for Irrigation Technology at California State University in Fresno. The topic of his presentation will be 'smart irrigation.' Other invited speakers will address landscape irrigation and technologies, ornamental plants for moisture limited landscapes, sociohorticulture issues in the urban landscape, and policy and ordinances affecting the urban landscape.

Registration will be \$75 before February 3, 2006, and \$100 after February 3. Please visit the conference Web site for additional information or contact Jeanine Castillo at (505) 649-0501 or [rjeanine@nmsu.edu](mailto:rjeanine@nmsu.edu).

# Canal Operation Automation

New measures taken in irrigation district to maximize efficiency

by  
Danielle Supercinski



*This pump house is located southeast from the split section of the main canal and water is received through the gate structure. There are two pumps that pump the flow into the pipelines.*

yield, reduced operation and maintenance costs, and water conservation through reduced spillage and seepage,” Nazarov said.

A new project to install automation equipment has been initiated through the Rio Grande Basin Initiative (RGBI) to demonstrate the benefits of canal automation. The project will include system design, mechanical and electrical refurbishment, automation equipment procurement, installation services, programming (software), field-testing and training. Delta Lake Irrigation District (DLID) is the first district where a canal automation system will be implemented through RGBI.

Currently, manual operation of water control structures is predominant in the region, but district personnel lack sufficient experience and technical knowledge to manage those complex systems. There is also a lack of modern, reliable water flow information and communication

systems which force district administrators to make management and operational decisions based on insufficient information. The automatic control systems planned for the district will overcome the weaknesses of these manually controlled systems.

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***“Canal automation is a rapidly improving technology that will open up new possibilities for processing data.”***

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Today’s irrigation and water districts face increasing challenges in their daily operations. Challenges include increased demands for flexible and efficient operation, rising costs of energy, limited water supplies and expensive labor.

The Irrigation District Engineering & Assistance (IDEA) team of Texas Cooperative Extension is assisting districts on addressing these problems by focusing their efforts on water conservation projects in the Mexican border region of Texas to produce water savings and improve conveyance efficiency through optimal irrigation canal and pipeline management.

“For more precise water management of a large and complex irrigation system, rapid processing of the large amounts of data is required,” said Azim Nazarov, Extension associate at Weslaco Agricultural Research and Extension Center, Texas A&M University System. “Canal automation is a rapidly improving technology that will open up new possibilities for processing data and perform the complex adjustments of gates for water control.

“In addition, automation will result in more efficient water management with benefits from improved crop

The IDEA Team will demonstrate a type of control system called Supervisory Control and Data Acquisition (SCADA) in DLID. Delayed delivery of scheduled flows has been a problem in the district, but with implementation of the SCADA system, scheduled flows can be delivered on time. Implementation will also result in more efficient water management with benefits from improved crop yield, reduced operation and maintenance costs, and water conservation through reduced spillage and seepage.

“The unique feature of this project is that the

automatically controlled gates will be coupled with optimal water delivery at the farm turnouts in order to maximize on-farm efficiencies and reduce conveyance losses,” said Guy Fipps, Extension agricultural engineer and director of the Irrigation Technology Center.

Water control structures, such as the gates, can be controlled by a unit located either at the site (local automatic control) or by a unit at the monitoring station away from the site (remote automatic control).

***“Delta Lake Irrigation District’s canal automation project will serve as a model for replication of similar projects around the Lower Rio Grande Valley.”***

“Remote control of the automatic control structures can be more efficient because all of the data and information is displayed at the console in the monitoring station,” Fipps said. “Positions of all water control structures can be changed simultaneously to desired levels by pushing one button.”

The IDEA Team is working to develop an equipment list and associated costs to help the districts choose the appropriate items needed for this demonstration. Districts will be required to cover the costs of equipment items such as motors and actuators. Extension will be covering the costs of the automation equipment, including the communication equipment, software, Programmable Logic Controllers (PLC) and water level sensors.

“Increasing the efficiency of water used in agriculture is essential to support rural livelihoods, sufficient food production for the growing population, and continued social and economic development,” Fipps said. “With current development of SCADA technology it is now possible to think of developing and implementing centralized and automated canal control approaches that would allow the simultaneous operation of multiple control structures.”

These approaches would be more effective than current manual operations and would lead to optimization of canal water management procedures, he said.

According to the 2003 DLID Water Conservation Project Report, the estimated quantity of water lost

due to system spills is approximately 7.5 percent of the annual irrigation water diverted or 5,678 acre-feet per year. Approximately 3 to 5 percent, or 2,271 to 3,785 acre-feet per year, of the annual irrigation water diverted is estimated to be saved by implementation of canal automation.

“As the district gains more control of their irrigation system you will see more timely on-farm irrigation, which will increase the on-farm efficiency and decrease operating costs of the district,” said Eric Leigh, Extension associate in biological and agricultural engineering.

The IDEA Team on this project expects the DLID SCADA system to improve water use efficiency, facilitate the scheduling of water delivery, and planning for ongoing maintenance and future rehabilitation programs.

“Delta Lake Irrigation District’s canal automation project will serve as a model for replication of similar projects around the Lower Rio Grande Valley,” Fipps said.

The Irrigation District Engineering & Assistance (IDEA) team plans to implement two additional demonstrations at United Irrigation District and in El Paso.

This project is made possible with funding from the Rio Grande Basin Initiative, administered through Texas Water Resources Institute.



*This very old head gate will be equipped with SCADA equipment and will be controlled from the Delta Lake Irrigation District Office.*

# Pecos River Ecosystem Project

## Applying saltcedar control along the Pecos banks

by  
Danielle Supercinski

In the early 1900s, government agencies and private landowners began planting saltcedar to control stream bank erosion along rivers, such as the Pecos. Through the 20<sup>th</sup> century, an estimated 14,000 acres of water-consuming saltcedar thrive along the banks of the Pecos River in Texas and quickly dominated the area, out-competing native plants for sunlight, moisture and nutrients.

The Pecos River Ecosystem Project was conceived in 1997 to address alternatives for saltcedar control along the Pecos. In September 1999, North Star

Helicopters from Jasper, Texas applied aerial Arsenal® treatments to 655 acres. Since that time, saltcedar treatments continued along the Pecos River and throughout the whole basin. From 1999 through 2005 approximately \$2,693,915 had been spent treating 13,497 total acres along the river and the entire basin.

“As of the end of the 2005 spray season, my estimate is that we’ve completed treating approximately 75 percent of saltcedar on the entire Pecos River in Texas,” said Charles Hart, professor and Extension range specialist in Fort Stockton.

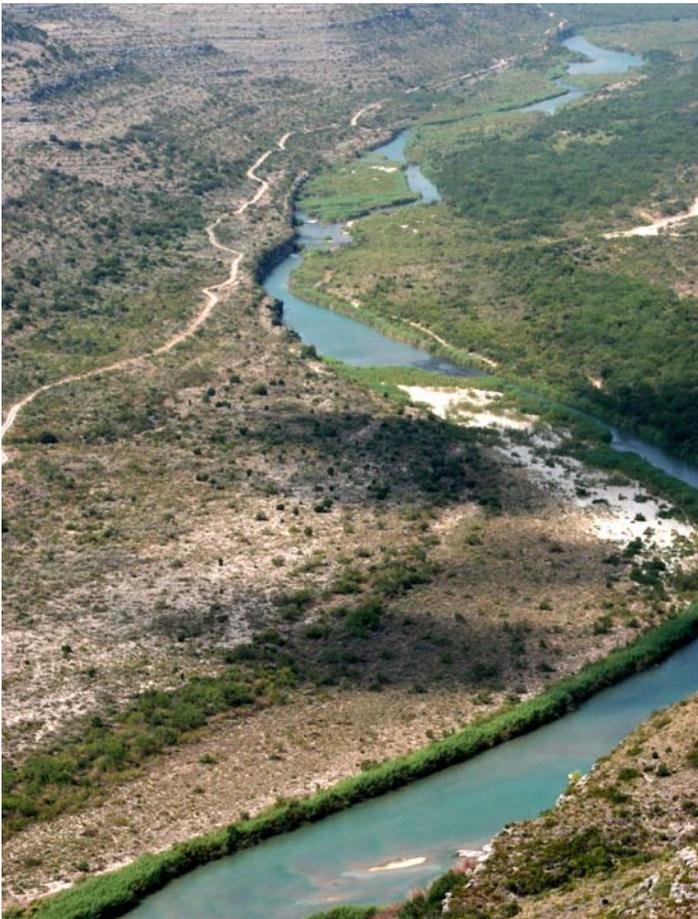
Research continues, but current estimates show that each acre of saltcedar uses an average of 3 to 4 acre feet of water annually. Through the Pecos River management program, researchers hope to salvage at least 50 percent of this annual loss, he said.

“At this point, about all I can estimate is that we are salvaging about 2 acre feet (of water) for every acre of saltcedar we have treated,” Hart said.

This project has already seen significant water savings from these treatments. Throughout the project’s first seven years, total water salvage estimates are between 54,268 to 81,402 acre feet (17.7 to 26.5 billion gallons).

The Pecos River Management Plan focuses on three key areas: 1) Herbicide application on saltcedar, 2) debris removal through prescribed burning, and 3) long-term follow-up management through biological control, spot spraying and native plant restoration. A major concern is the revegetation of the river banks with native plants to complete the ecosystem restoration. The treatment methods selected needed to provide a high rate of saltcedar mortality while minimizing detrimental effects on existing native vegetation.

“In summary, saltcedar control using the herbicide application described was successful with an average of 85 to 90 percent apparent mortality of saltcedar two years after treatment,” Hart said. “With long-term monitoring, treatment life of the control strategies should be further evaluated and follow-up



*The Pecos River banks are green with water-consuming saltcedar trees, which are out-competing native plants for sunlight, moisture and nutrients.*

management alternatives explored.”

Saltcedar control efforts continue along the river banks, as well as in other infested areas in the Pecos River Basin. Numerous agencies, organizations and companies are involved in helping along these project efforts.

“The Rio Grande Basin Initiative allowed us to enhance our monitoring and research efforts and helped to provide base data important in obtaining additional funding,” Hart said.

Major partners include the Upper Pecos Soil and Water Conservation District, Texas Cooperative Extension, Texas Department of Agriculture, USDA Natural Resources Conservation Service, Red Bluff Water and Power Control District, U.S. Environmental Protection Agency, Pecos River Compact, International Boundary and Water Commission, BASF, local landowners, and irrigation districts in Loving, Reeves, Ward and Pecos Counties.

For more information on the Pecos River Ecosystem Project please visit <http://pecosbasin.tamu.edu> or contact Charles Hart at [cr-hart@tamu.edu](mailto:cr-hart@tamu.edu).



*Photos courtesy of Charles Hart  
These brown banks have been treated for saltcedar.*



## Faces of RGBI

### NMSU's 'go to' person for reporting and budgeting

When reporting or budgeting time rolls around for the Rio Grande Basin Initiative project, faculty and staff in the NMSU-RGBI can count on Leeann DeMouche to be knocking on their door. They can also be assured of getting lots of program ideas and feedback when they call Leeann with questions.

When Leeann began her work with the RGBI, she was initially involved as Co-P.I. on Frank Ward's look at institutional constraints to water conservation. Recognizing Leeann's enthusiasm and hard work, Craig Runyan, NMSU project manager, pirated 50 percent of Leeann's time to assist with project management.

"Life hasn't been the same since," Runyan said. "She develops and delivers programs, balances budgets, rides herd on renegade faculty and just about anything else that's thrown her way."

As an economist, Leeann is particularly skilled at project fiscal management. Beth Chorey, assistant director in the business office, said, "Leeann is the 'go to' person in dealing with the financial and grant related details for the program."

David Cowley of NMSU's Fisheries and Wildlife Sciences agrees. "We're lucky to have Leeann with the RGBI. Her keen eye toward budgets has helped keep P.I.s on a good fiscal track," Cowley said.

Leeann's hard work and dedication to the success of the RGBI helped earn her recent promotion to the college rank faculty position of Extension Water Resource Specialist. Her continued work in the RGBI, NMSU Water Task Force and other statewide water programs has earned Leeann recognition as a cooperative, 'can-do' professional.

## Increasing Irrigation Efficiency in the Rio Grande Basin through Research and Education

Through Extension and research efforts, the Texas A&M University System Agriculture Program and the New Mexico State University College of Agriculture and Home Economics are implementing strategies for meeting present and future water demand in the Rio Grande Basin. These strategies expand the efficient use of available water and create new water supplies. This federally funded initiative is administered by the Texas Water Resources Institute and the New Mexico State University Water Task Force with funds from the Cooperative State Research, Education, and Extension Service.

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