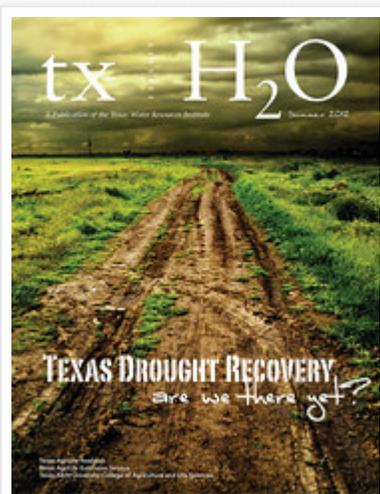


Conservation Matters

THE TEXAS LAND, WATER AND WILDLIFE CONNECTION

A publication of the Texas Water Resources Institute and the Texas A&M Institute of Renewable Natural Resources

[New issue of txH2O: Texas drought recovery - are we there yet?](#)



The Texas Water Resources Institute has published the [Summer 2012 issue](#) of txH₂O. This issue of the magazine spotlights the efforts of community water system operators, farmers and ranchers to recover from the historic 2011 drought. Experts speaking at the Texas Water Summit, organized by The Academy of Medicine, Engineering and Science of Texas, share their thoughts on securing Texas water for the future, and environmental flows experts discuss the importance of environmental flows regulations, particularly as illustrated by the recent drought. **Heather Harward**, executive director of H₂O4TEXAS, answers questions about the organization and its promotion of Texas' state water plan implementation. The new Water Conservation and Technology Center and its director are also spotlighted.

Read the [issue](#) for more information, and [subscribe](#) to receive future issues.

[Congressman Gohmert visits Caddo Lake and giant salvinia weevil-rearing facility](#)



Congressman Louie Gohmert of Texas and many members of his staff recently visited the [Center for Invasive Species Eradication's](#) giant salvinia weevil-rearing facility at the Caddo Lake National Wildlife Refuge in East Texas, according to **Lucas Gregory**, a [Texas Water Resources Institute](#) (TWRI) project manager.

Dr. Allen Knutson, Texas A&M University professor, Texas AgriLife Extension Service entomologist and lead researcher at the facility; **Lee Eisenberg**, AgriLife Extension assistant; and Gregory gave the

Congressman an overview of giant salvinia, a free-floating aquatic fern native to South America, and the center's research program on managing the invasive plant with biocontrol, using giant salvinia weevils, and chemical application.

"In 2012, we have released 51,000 salvinia weevils on the lake and sprayed approximately 640 acres with chemicals. The Texas Parks and Wildlife Department has sprayed about 400 acres, and Cypress Valley Navigation District has sprayed another 350-400 acres," Gregory said.

Giant salvinia has invaded water bodies in the southern United States in recent years. Caddo Lake was first infested with giant salvinia in 2006.

"The flood and freezes in the winters of 2010 and 2011 greatly reduced the amount of giant salvinia present in Caddo Lake, but it has come back with a vengeance this year," Gregory said. "Although we don't have an accurate estimate of infested

acreage, giant salvinia is present and thriving throughout the upper portions of the lake."



The center, part of the [Texas AgriLife Extension Service](#), [Texas AgriLife Research](#) and TWRI, operates the weevil-rearing facility, located near the refuge headquarters.

"We toured the greenhouse where the weevils are growing and informed the Congressman and his staffers about the project partners that are involved and the support we have received from agencies and from landowners around Caddo Lake to get everything built," Gregory said.

In the laboratory, Eisenberg explained how weevils are sampled and counted, and the Congressman and his staff had the opportunity to see an adult weevil and larvae under the microscope.

The group also presented biocontrol results and other efforts being conducted at the center, such as cold tolerance studies, dispersal studies and efforts to get more cold-tolerant weevils to the facility.

Gregory said the cold tolerance studies are determining how the salvinia weevils adapt to cold weather and which ones are better suited to the climate at Caddo Lake. They are using weevils grown at four different locations: the Lewisville Aquatic Ecosystem Research Facility in Texas, Louisiana State University, University of Florida and Australia. They are comparing the three from the United States to the quarantine weevils directly from Australia that the U.S. Department of Agriculture Agricultural Research Service acquired for this particular study.

Gregory said early results of the cold tolerance studies indicate that the weevils direct from Australia might be better suited to Caddo Lake.

"We hope to get some weevils from Argentina by December through the U.S. Department of Agriculture-APHIS to do only laboratory tests at Texas A&M," Gregory said. "Because of the higher elevation of Argentina, we expect these beetles to be more cold tolerant than those from Australia."

The visit concluded with a viewing of a [video](#) taken by **Jack Canson** of the Caddo Lake Institute and Robert Speight of the Cypress Valley Navigation District at the end of July that shows how extensive giant salvinia growth is on parts of the lake.

The [Caddo Lake Giant Salvinia Eradication](#) project is funded by Congressional support through the USDA [Natural Resources Conservation Service](#).

[Water quality, land-management workshops for Trinity River Basin begin Sept. 7](#)

[Trinity Waters](#), a landowner organization based in the Trinity River Basin, and the [Texas AgriLife Extension Service](#) are hosting a series of workshops for landowners and other interested stakeholders in the region.

With significant population growth expected in the Dallas/Fort Worth and Houston metro areas, current water quality issues and an increasing demand for clean water will place greater pressure on natural resources of the Trinity River basin, said an AgriLife Extension expert.

"The first round of workshops is intended to raise awareness of water and land management issues in the basin among interested members of the public," said **Blake Aildredge**, AgriLife Extension associate and education and outreach coordinator for the Building Partnerships for Cooperative Conservation in the Trinity River Basin project.



Allredge said continuing education units will be available for attendees of the first round of workshops to be held Sept.-Nov. The no-cost, half-day workshops will address water resource protection and improvement. Times and locations for the initial workshops are:

- **Sept. 7** from 8 a.m.-noon, IOOF Event Center, 600 N. 45th Street, Corsicana,
- **Oct. 29** from 8 a.m.-noon, Texas Freshwater Fisheries Conservation Center, 5301 County Rd. 4812, Athens,
- **Nov. 1** from 8 a.m.-noon, Walker County Storm Shelter, 455 State Highway 75 North, Huntsville.

According to Trinity Waters, about 40 percent of Texans get their water from the Trinity River, and widespread habitat loss throughout the basin has led to reduced wildlife populations, particularly grassland birds.

"Private landowners own the majority of the land in the middle Trinity basin, so providing them with the information and resources they need to accomplish conservation goals within the basin is critical," Allredge said. "Quality land management links common goals in livestock, wildlife and water management."

He said there will be three sets of workshops, each subsequent workshop with more detailed focus than the previous, to address various aspects of natural resource conservation and land management. These will culminate in a summit workshop.

Those interested in attending any of these workshops should contact Allredge at balldredge@tamu.edu or RSVP online at naturalresourcestraining.tamu.edu/schedule.

The *Building Partnerships for Cooperative Conservation in the Trinity River Basin* project is funded by the Texas State Soil and Water Conservation Board through a Clean Water Act grant from the U.S Environmental Protection Agency.

For more information on Trinity Waters and the workshops, go to trinitywaters.org or read the full [AgriLife TODAY story](#).

[Save the date: Texas Riparian Association annual meeting and tour Oct. 26-27](#)

The [Texas Riparian Association](#) (TRA) is hosting its annual meeting **Oct. 26-27** at McKinney Roughs Nature Park in Bastrop. McKinney Roughs is a 1,100-acre nature park where the Post Oak Savannah, Blackland Prairie, East Texas Piney Woods and Colorado River valley converge to create an unusual blend of natural resources, according to organizers.

The event will begin with a series of presentations and a social on Friday, followed by a trip to the Bastrop Fire Zone on Saturday to tour burned riparian areas with personnel involved in the recovery effort to stabilize creek banks and restart understory vegetation.

For more information, visit texasriparian.org. To RSVP, contact **Nikki Dictson** at n-dictson@tamu.edu.

[New Lone Star Healthy Streams manuals available for download](#)

A group of research scientists, resource conservation agencies, agricultural groups and producers has collaborated to compile five new Lone Star Healthy Streams manuals, all of which are now available for download from the Texas AgriLife



Extension Service Bookstore at agrilifebookstore.org.

The [Lone Star Healthy Streams program](#) aims to educate Texas livestock producers and land managers on how to best protect Texas waterways from bacterial contributions associated with livestock production and feral hogs, said **Jennifer Peterson**, [AgriLife Extension](#) program specialist in water quality.

Peterson and **Dr. Larry Redmon**, AgriLife Extension state forage specialist, are working to get the manuals to producers and others needing best management practices for reducing *E. coli* bacteria in rivers and streams.

The two said about 300 Texas water bodies currently do not comply with state water quality standards established for *E. coli*.

By getting best management practices to landowners dealing with beef and dairy cattle, horses, poultry or feral hogs, they hope to help landowners further protect Texas waterways from sediment, nutrient and pesticide runoff, Peterson said.

The Lone Star Healthy Streams program has, in fiscal year 2012 alone, delivered two to three beef cattle educational programs each month, reaching more than 3,000 producers throughout Texas, Redmon said.

Publication numbers for the manuals are: [Beef Cattle, B-6245](#); [Dairy Cattle, B-6253](#); [Horses, B-6254](#); [Poultry, B-6255](#); and [Feral Hogs, B-6256](#). Printed copies of the manuals are also available by contacting Peterson at 979-862-8072 or jjpeterson@ag.tamu.edu.

The Lone Star Healthy Streams program is a partnership between AgriLife Extension, the Texas State Soil and Water Conservation Board and the [Texas Water Resources Institute](#). The program is funded by the Texas State Soil and Water Conservation Board through U.S. Environmental Protection Agency Clean Water Act Section 319(h) funds.

For more details on Lone Star Healthy Streams, visit lshs.tamu.edu, or read the full [AgriLife TODAY article](#).

[Nominations open for Blue Legacy Awards in Agriculture](#)

The [Water Conservation Advisory Council](#) is accepting nominations for [2012 Blue Legacy Awards in Agriculture](#). The award promotes the agricultural industry's efforts in water conservation in Texas and honors groups or producers whose practices enhance conservation of water while maintaining or improving profitability, according to the council.

Due **Oct. 26**, nominations are welcome from any individual, group, agency, association, council or organization nominating an individual producer, family operation or partnership business operation. Individuals, families or businesses may also nominate themselves. Past nominees are eligible; previous winners may not reapply. The selection committee considers the use of best management practices, innovative technologies, leadership of the producer and sustainability of business as a whole.

Winners will be invited to attend a reception banquet on **Nov. 27** at the Ambassador Hotel in Amarillo, Texas, for presentation of the awards, in conjunction with the 2012 Amarillo Farm and Ranch Show **Nov. 27-29** in Amarillo.

For details about the award, contact the council at 512-463-1667 or wcac@twdb.state.tx.us, or visit savetexaswater.org.

[UNT hosting Quail Symposium Sept. 21](#)

[The North Texas Quail Symposium](#) is set for **Sept. 21** in Denton and will include presentations from many of the nation's top quail scientists, according to organizers. The symposium begins at 8 a.m. and will be at the University of North Texas Gateway Center Ballroom, 801 North Texas Blvd.

Speakers will discuss topics ranging from quail hunting to the philosophy and science of quail management. Light breakfast refreshments will be served at 8 a.m., with introductory comments by the President of the University of North Texas beginning at 9:00 a.m., and lunch will be provided.

Registration is [available online](#). For more information, go to quail.unt.edu or contact **Dr. Kelly Reyna** at kelly.reyna@unt.edu.

[TWRI grant recipient studies water use efficiency of hybrid corn](#)

Drought-tolerant hybrid corn can be irrigated less than nonhybrid corn without sacrificing crop yield, suggests a study by [Texas Water Resources Institute](#) (TWRI) research grant recipient **Jacob Becker**.

Becker has been around corn all his life. The McLean, Ill., native worked with his advisor, [West Texas A&M University](#) assistant professor **Dr. Brock Blaser**, to determine whether drought-tolerant corn hybrids can be watered less and still produce the same yield as their nondrought-tolerant counterparts.

"Water is the number one factor limiting corn production in the Texas High Plains," said Becker, a master's student.

"Texas producers are able to obtain corn yields that rival that of any region in the world," Becker said. These yields, however, would not be possible without water from the Ogallala Aquifer, he said.

The Ogallala is one of the largest aquifers in the world, and while most of the water pumped out is used for agriculture, more and more cities are turning to it to satisfy their water needs. "This will place increased pressure on producers to limit their water use," Becker said. "As the producers' water supply becomes more limited, water use efficiency must be increased to maintain a cropping system that conserves water in the Ogallala.

"The objective of the study was to determine if these varieties could be watered less than nondrought-tolerant hybrids and obtain the same yields," Becker said. His results suggest that drought-tolerant hybrid corn can produce grain even at low irrigation levels. "These are tremendous strides in increasing water use efficiency in agriculture," he said.

Becker said last year's drought hit his research hard. "It probably knocked off the top end of our yields," he said. However, Becker said that the conditions made for an excellent year to do a drought study.

Becker conducted his research on a field using some of the same practices local farmers use, such as pivot irrigation and strip-tillage. "(Farmers) can take our data and use it in their own farm," Becker said. Regional producers and water districts can use the results to establish yield goals with a limited amount of irrigation water, he said.

Research like Becker's gives a glimpse into the future of agriculture in the Texas Panhandle and other arid regions.

"Limited-irrigation corn will become a more normal production practice than fully irrigated corn," Becker said. He said it is important to make the public aware that scientists are working to reduce water pumping and increase agricultural yields.

Becker is a recipient of a 2011-2012 TWRI research grant. He will continue his research to include in-season soil moisture monitoring, more varieties of hybrids and dryland corn plots.

The TWRI grant is funded by the U.S. Geological Survey as part of the [National Institutes for Water Research](#) annual research program. TWRI is the designated institute for water resources research in Texas.

For more information on Becker's research, visit [TWRI Research Grants](#).

[Conference on air, soil and water quality seeks input from agriculture](#)

A national conference on the environmental impacts of poultry and livestock production is calling for abstracts and not just from professional scientists, but from farmers and other agricultural innovators too, said a Texas AgriLife Extension Service engineer.

The Livestock and Poultry Environmental Learning Center will host "[From Waste to Worth: 'Spreading' Science and Solutions](#)" **April 1-5, 2013**, at the Grand Hyatt Hotel in Denver. The deadline for abstracts is **Sept. 14**.

"We'll be looking at the impact of helping farmers taking control of air- and water-quality management, and how it affects overall environmental quality," said **Dr. Saqib Mukhtar**, AgriLife Extension engineer and associate head of the Texas A&M University [Department of Biological and Agricultural Engineering](#).

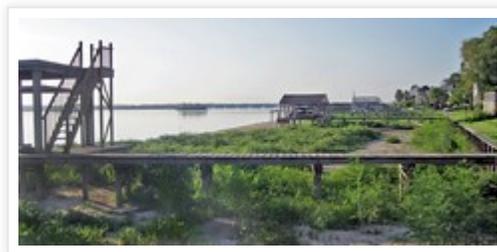
An abstract is a brief summary, usually only a few paragraphs long. The term usually applies to peer-review research articles, but can also apply to a thesis, conference proceeding or any in-depth analysis of a subject or technical innovation, Mukhtar explained.

"Examples of the kinds of subject matter are case studies of on-farm experience, climate change and animal agriculture, manure nutrient management, manure treatment technologies, environmental planning, pathogens, and regulations," he said.

More examples are available at the [Waste to Worth Conference website](#). For more information and to submit abstracts, contact **Dr. Joe Harrison**, nutrient management specialist, Washington State University at jhharrison@wsu.edu.

Read the full [AgriLife TODAY article](#) for more information.

[Study eyes economic impact of Lake Conroe's lowering levels](#)



Though ranked as one of the fastest growing counties in the nation for the last two decades, groundwater-dependent Montgomery County, Texas, is confronted with a looming water crisis that threatens its future growth, according to a recent [study](#) by urban planners in the Texas A&M University College of Architecture.

The study investigated how increasing regional demands for water from Lake Conroe and resulting reductions in the recreational lake's water level might impact the area's economy. Though researchers found that anticipated lower lake levels present a threat, limited primarily to the lake-area economy, they said the impending regional water crisis poses a more significant peril to the county's longstanding prosperity.

To mitigate the threat, the study urges county water management authorities to institute immediate, proactive water conservation measures as they seek to diversify their water resources and negotiate an authoritative voice in how the lake's water is used.

Though home to the 20,100-acre lake, Montgomery County is facing imminent water shortages because its growing population relies almost exclusively on freshwater aquifers, or groundwater, for its water supply, and those sources are being depleted faster than they can recharge, explained **Dr. George Rogers**, professor in Texas A&M's [Department of Landscape Architecture and Urban Planning](#) and the study's principal investigator.

Montgomery County, as shown the 2000 and 2010 U.S. Censuses, has benefited from dynamic growth. However, "this growth is fundamentally related to the economic health of the county," the study notes, and "is not sustainable without water. The current reliance on historically used freshwater aquifers, as the sole source of water is rapidly becoming a limitation on the future growth of the area."

Read the [full article](#) from the College of Architecture for more information.

[Imported beetles prove effective in controlling invasive saltcedar](#)



Since 2006, a steadily growing army of tiny beetles from the homeland of invasive saltcedar trees—Crete and Tunisia—have been providing biological control by slowly eating their way through saltcedar thickets, said **Dr. Allen Knutson**, [Texas AgriLife Extension Service](#) entomologist at Dallas.

"Most Texans who spend time along West Texas' rivers, streams and reservoirs recognize saltcedar," Knutson said. "It was introduced into the United States as an ornamental plant in the early 1800s, but unfortunately it

escaped to become an invasive species. Today, dense thickets of saltcedar choke out desirable vegetation, use large amounts of groundwater and increase the risk of flooding as trees narrow the river channel."

Saltcedar infests some 500,000 acres in Texas, Knutson said. He added that herbicides are effective but very costly. Saltcedar arrived in the United States without its natural enemies, he said. Biological control reunites the saltcedar with its natural enemies, limiting the trees' invasive nature.

"We have been working to establish the leaf beetles for biological control of saltcedar since 2006," he said. "To date, we have collected and released over 800,000 beetles in 15 West Texas counties. This year, we are starting to see the area-wide impact of this effort as beetles have defoliated saltcedar thickets along miles of the Rio Grande, Pecos, Colorado and Upper Brazos Rivers. Once established, these 'bio-beetles' should persist without the need for additional releases."

He said the small beetles and their larvae eat saltcedar leaves. Without leaves, the trees slowly starve to death. "Not many of these trees are 'graveyard dead' yet, but over time, our research and experience has shown canopies will die back and in some sites, trees will die as the beetles return each year and defoliate the trees."

For more information about saltcedar control see [bc4weeds.tamu.edu](#) or read the full [AgriLife TODAY story](#).

[International Water Seminar Series features Brazilian and local experts](#)

The Texas A&M University [Water Management and Hydrological Sciences](#) program will offer its International Water Seminar Series in partnership with researchers from Brazil beginning **Sept. 5**. Seminars will be held every Wednesday at 2 p.m. in the KAMU-TV studio.

Speakers include experts from Texas A&M, [University of Pernambuco](#), [Sandia National Laboratories](#) and [Brazilian Agricultural Research Corporation](#) discussing topics such as the impacts of climate change, water management and water quality issues.

The first lecture, "Global Climate Change," will be given by Texas A&M's **Dr. Jerry North**. The **Sept. 12** lecture will feature **Dr. Carlos Augusto Shettini** from the University of Pernambuco speaking about "Global Changes in Coastal Areas in Brazil." **Dr. Bruce McCarl**, from Texas A&M, will cover "Climate Change and Agriculture" **Sept. 19**, and **Dr. Rubens Gondim**, of the Brazilian Agricultural Research Corporation, will present on "Climate Change and Irrigation Water Needs in the Semiarid Northeast" **Sept. 26**.

Following lectures will focus on water planning and allocation, urban storm water management, river restoration and water quality, among other topics. Students and faculty are invited to interact and discuss with the speakers and students from Brazil via live televised sessions. For more information, contact **Rosario Sanchez Flores** at Rosario@geos.tamu.edu.

[New Extension resource helps Trinity River Basin residents restore grassland](#)



To aid landowners in the middle Trinity River Basin and similar areas, the [Texas AgriLife Extension Service](#) has produced a publication with step-by-step instructions on how to restore native grasslands, said agency experts.

"Many native grasslands are being lost to urbanization, fragmentation, row-crop farming and introduced grasses used for livestock production," said **Dr. Jim Cathey**, AgriLife Extension program leader for wildlife and fisheries sciences. "The loss of these grasslands has resulted in a dramatic decline in numerous grassland bird species, including quail."

The middle Trinity River Basin between Dallas and Lake Livingston, as well as tall-grass prairies within the Blackland Prairie and Post Oak Savannah ecoregions, currently contain only about 1 percent of their historical native grasslands, Cathey said. The recommendations provided in the new publication, [Native Grassland Restoration in the Middle Trinity River Basin](#), can be used as guidelines to help address the many strategies and procedures toward restoring native prairies.

Cathey said native bunchgrasses and forbs make ideal habitat for wildlife, such as quail and other ground-nesting birds, as well as several species of mammals, reptiles, amphibians and insects native to prairie habitats.

Topics addressed in the publication include the use and benefits of native grasslands, site selection and preparation, establishment of native vegetation, seed selection, reseeding methods, seeding rates, depth and timing, and using native grass hay for seeding. There is also a section on the use of the [Trinity River Information Management System](#), an online mapping tool for supporting land conservation and habitat restoration decisions in the Trinity River basin.

The publication is available from the Texas AgriLife Extension Bookstore at agrilifebookstore.org.

Read the full [AgriLife TODAY article](#) for more information.

[New Publications/Papers and Training Courses](#)

New Extension publications

[Chemical Weed and Brush Control: Suggestions for Rangeland](#). Charles R. Hart, Jim Ansley, Wayne T. Hamilton, Larry Redmon, Robert K. Lyons, Barron S. Rector, Kent Ferguson, Texas AgriLife Extension Service, B-1466, 2012.

[Lone Star Healthy Streams: Beef Cattle Manual](#), Larry Redmon, Kevin Wagner, Jennifer Peterson, Texas AgriLife Extension Service, B-6245, 2012.

[Drinking Water Problems: Corrosion](#), Mark L. McFarland, Tony Provin, Diane Boellstorff, Texas AgriLife Extension Service, E-616, 2012.

[Native Grassland Restoration in the Middle Trinity River Basin](#), Kyle Thigpen, Blake Alldredge, Jay Whiteside, Shawn Locke, Larry Redmon, Megan Dominguez, James Cathey, Texas AgriLife Extension Service, SP-469, 2012.

New TWRI publications

[2011-2012 Efficient Irrigation for Water Conservation in the Rio Grande Basin Progress and Accomplishments](#), Danielle Kalisek, editor, Texas Water Resources Institute TR- 425.

Natural Resources Training Courses

Cooperative Conservation in the Trinity River Basin	Sept. 7
SWAT for Beginners	Sept. 10–11
Advanced Data Processing for ArcSWAT	Sept. 12
SWAT for Advanced Users	Sept. 13–14



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