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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

Institute hosts water seminar

Update: Dr. Tidwell's presentation may be viewed online now.

The Texas Water Resources Institute-Texas AgriLife Research and Extension is hosting a water seminar, "Collaborative Modeling for Integrated Energy and Water Planning," on Friday, **April 6**. The seminar, given by **Dr. Vincent C. Tidwell** of Sandia National Laboratories, is set for 11 a.m. in room 129 of the Agriculture and Life Science Building on the Texas A&M University campus.

Dr. Tidwell is the first of three candidates for the chief water scientist position with the institute. Video of his presentation will be available after the seminar on the institute's website.

Arroyo Colorado Watershed Partnership wins Texas Environmental Excellence Award

The Texas Water Resources Institute was recently selected as the winner of the Texas Environmental Excellence Award in the civic/community category for its Arroyo Colorado Watershed Partnership.

Presented annually by the Governor of Texas and the Texas Commission on Environmental Quality, the Texas Environmental Excellence Awards spotlight the state's highest achievements in environmental preservation and protection. Representatives from the institute will accept the award during the commission's annual awards banquet as part of its Environmental Trade Fair and Conference at the Austin Convention Center, on May 2 in Austin.

"This award is definitely an honor for the institute, but the real credit goes to the farmers, the cities and other project participants who have made this partnership such a success," said **Dr. Neal Wilkins**, the institute's director.

Jaime Flores, an institute program coordinator and watershed coordinator for the Arroyo Colorado Watershed Protection Plan Implementation project, said the Arroyo Colorado Watershed Partnership is comprised of more than 700 people representing federal, state and private organizations, agricultural producers and other interested individuals concerned with identified water quality problems in the Arroyo Colorado in the Lower Rio Grande Valley. The partnership published its Arroyo Colorado Watershed Protection Plan in 2007, one of the first watershed protection plans in the state, he said.

"Through multiple projects and the cooperation of many stakeholders, the institute and partnership have achieved 75 percent of the goals set forth in the plan," Flores said. "University scientists and city officials are working alongside farmers and schoolchildren to monitor, clean-up and educate others about the Arroyo."

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Flores said three cities have constructed wetlands that receive treated effluent from their wastewater treatment plants. The wetlands reduce bacteria, nutrients and biochemical oxygen demands loads entering the Arroyo. "These wetlands also provide an excellent educational opportunity to teach those interested about their natural functions," he said.

"Cooperating farmers have implemented agricultural BMPs that have reduced nitrogen, potassium and phosphate amounts entering the Arroyo," he said. "We have educated more than 30,000 adults and students about the watershed, their impact on its water quality, and how they can be better stewards. We have also installed storm drain markers and watershed boundary signs, which have reduced trash and pollutants entering storm drains."

The institute began coordinating the Arroyo Colorado program in 2007, working closely with the partnership, the commission, Texas State Soil and Water Conservation Board and the Texas General Land Office to implement practices to improve water quality, according to **Allen Berthold**, an institute project manager.

"The institute and the partnership have submitted or supported submission of more than 39 proposals since 2005," Berthold said. "Currently, the institute manages five projects for the partnership, totaling approximately $2.3 million in funds with other projects beginning in September."

The Texas Water Resources Institute is a unit of Texas AgriLife Research, the Texas AgriLife Extension Service and Texas A&M University's College of Agriculture and Life Sciences.

More information on the Arroyo Colorado Watershed Partnership can be found at arroyocolorado.org.

Military Sustainability Program recognized with Extension Superior Service Award

The Texas A&M Institute of Renewable Natural Resources recently received the Texas AgriLife Extension Service's 2012 Superior Service Award in the team category for its Military Sustainability Program.

Institute members of the team are **Brian Hays**, AgriLife Extension program specialist; **Dr. Roel Lopez**, the institute's associate director; and **Todd Snelgrove**, AgriLife Extension program specialist. Other team members are **Bill Ross**, natural resources policy consultant with Brooks, Pierce, McLendon, Humphrey and Leonard, LLP, and **Justin Tatum**, program specialist with the Texas Watershed Management Foundation.

The annual Superior Service Awards recognize AgriLife Extension faculty and staff members who provide outstanding performance in Extension education or in service to the organization.

"Although relatively new, the Military Sustainability Program has accomplished much through the innovation and diligence of each of its team members," said **Dr. Neal Wilkins**, the institute's director. "Each member has used his expertise to help develop numerous programs that ensure military readiness while also protecting natural resources."

"Military readiness ensures our troops are ready for combat, and is dependent on the ability for the military to test and train on its land," Lopez said. "Issues such as urban development near installations, loss of wildlife habitat and other natural resource problems facing military installations can limit or prevent the military from using their land to the fullest extent," Lopez said.

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"This program supports the military's training mission through improving land management practices, training military natural resource professionals, and developing regional partnerships," Lopez said.

He said it is a collaborative effort of the institute with federal natural resource agencies, state agencies, private landowner groups and the U.S. Department of Defense.

"Keeping our troops well-trained while promoting land conservation and natural resource sustainability requires a collaborative, regional approach," he said.

In the award announcement, **Dr. Ed Smith**, Texas AgriLife Extension Service director, said the award winners are "demonstrating leadership and commitment in our mission to improve the lives of people, businesses, and communities across Texas and beyond through high quality, relevant education."

Team members will receive framed commendations for their outstanding achievements.

2012 Texas Water Summit to be held May 20–21 in Austin

The 2012 Texas Water Summit, hosted by The Academy of Medicine, Engineering, and Science of Texas (TAMEST), will be held **May 20-21** in Austin. The event is focused on "Securing Water for Texas' Future," and will include experts from water suppliers, universities, and organizations throughout Texas.

According to TAMEST, the forum will explore the major challenges of ensuring future water resources, including supply and demand, water science and conservation, surface and groundwater resources, and developing new forms of water resources. The event will bring together scientists, engineers, policy analysts, legislators, CEO's and agency officials to discuss water security in Texas.

"Water security is increasingly linked to the security of our food, fiber and energy production systems," said **Dr. Neal Wilkins**, director of the Texas Water Resources Institute and the Texas A&M Institute of Renewable Natural Resources. "This conference will develop a common understanding of the science, technology, economics and policies needed to address the emerging challenges to our region's water security."

The $75 registration includes the reception and dinner on **May 20** and the summit on **May 21**. For more information and for program updates, visit the conference website.

RFP: Corps of Engineers and NIWR water resources grants

The U.S. Army Corps of Engineers (USACE) Institute for Water Resources (IWR) in cooperation with the National Institutes for Water Resources (NIWR) has requested proposals for grants to support research related to water resources issues in the U.S.

Grant proposals may request up to $200,000 in federal funds. Proposals must be submitted to the USACE Institute for Water Resource by a NIWR-designated institute or center, which for Texas researchers, is the Texas Water Resources Institute (TWRI). The government's obligation under this program is contingent upon the availability of funds.

All proposals must be submitted by **July 16** to TWRI in order to be approved and submitted to IWR.

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The RFP is available online. For more information, contact **Danielle Kalisek** at 979.845.2781 or dmkalisek@tamu.edu.

Conference highlights bacterial source tracking practices, advances, improvements

Nearly 120 participants from 13 states participated in the 2012 Bacterial Source Tracking – State of the Science Conference **February 28-29** to hear discussions on bacterial source tracking (BST) and current practices, scientific advances and improvements in application.

The conference, held at the T Bar M Resort and Conference Center in New Braunfels, was coordinated by the Texas Water Resources Institute (TWRI) and funded by a state general revenue nonpoint source grant from Texas State Soil and Water Conservation Board (TSSWCB). Presenters highlighted BST uses in the existing regulatory framework and applications in food safety, provided an overview of BST case studies nationwide and updated participants on the TexasE. coliBST Library.

"Nonpoint sources of pollution greatly affect water quality, with bacteria being a serious concern," said **Dr. Kevin Wagner**, an associate director of the institute. "Identifying and assessing sources of fecal pollution are vital to effectively implementing strategies to address these water quality concerns, and bacterial source tracking has been demonstrated to provide an effective tool for identifying sources of bacterial pollution."

Dr. George Di Giovanni, professor at the University of Texas School of Public Health, served as the conference chair. Di Giovanni is also the primary developer of the most comprehensive *E. coli* culture collection and BST library in the state.

"The science of BST continues to evolve," said Di Giovanni. "The conference provided a valuable opportunity to share developments in BST technology and present case studies from Texas and beyond."

Attendees included federal, state and regional agency personnel; elected officials; academia and students; and others interested in the applicability of BST. In addition, seven posters were presented displaying a variety of BST research projects.

One researcher noted that if the national parks were subject to the Clean Water Act, most of their waters would be considered impaired, raising some good questions regarding the need to reexamine the U.S. Environmental Protection Agency (EPA) water quality standards for bacterial impairments.

Conference speakers not only included experts from Texas, but also speakers from EPA's Office of Research and Development, Virginia Tech, The University of Minnesota, Battelle Memorial Institute, University of South Florida and James Madison University.

The BST conference was hosted by TWRI, TSSWCB, The University of Texas School of Public Health-El Paso Regional Campus and Texas AgriLife Research.

Visit the conference website for follow up information including presentations, videos, and poster abstracts: texasbst.tamu.edu/2012-conference.

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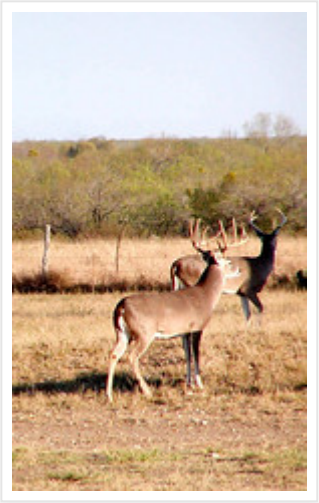
Texas Deer Study Group to convene April 19–20 in Stephenville



The Texas Deer Study Group conducted by the Texas AgriLife Extension Service will convene **April 19-20** and meetings will focus on deer management practices. **Dr. Dale Rollins**, originator of the deer study-group concept said that this year's theme is "Deer Management in Texas: Navigating the Deer Management Continuum."

The group will meet 7 a.m.-5:30 p.m. **April 19** in the Graham St. Church of Christ Family Center, 375 N. Graham St., Stephenville and from 8-11:30 a.m. **April 20** on the Dearing Ranch at Mingus.

Rollins said the program was created in 1997 as a posthumous tribute to **Donnie Harmel**, the long-time manager of the Kerr Wildlife Management Area, and since their beginning, the meetings have moved around the state and have been planned around topical issues in deer management.

"Deer management as a profession and a practice has become increasingly contentious over the past decade with the increasing number of deer herds managed for large antlers," Rollins said. "Traditionalists and entrepreneurs often differ about the ethics of various intensive practices, so this will be one area we will give in-depth discussion to.

"Specific to the Possum Kingdom/Cross Timbers region, we'll also be discussing a number of deer habitat-management topics following last year's historic drought and wildfires. These will include long term-drought and fire perspectives, plant and soil responses to fire and drought, legumes after fire and drought, effects of fire on woody plant structure, deer response following wildfires, range recovery and financial impacts of fires from a hunting perspective."

Other highlights will include talks on food plots, deer diet studies and the Dearing Ranch tour on the second day of the program.

Entities involved with the study group along with AgriLife Extension are the Texas Wildlife Association, U.S. Department of Agriculture - Natural Resources Conservation Service and the Texas Parks and Wildlife Department.

Individual preregistration is $75 before **April 12** and $100 thereafter. For more information, contact **Helen Holdsworth**, director of Conservation Legacy, Texas Wildlife Association, at 210.826.2904 or hholdsworth@texas-wildlife.org. Additional details and registration information are online.

Read the full AgriLife TODAY article.

Wurbs appointed to McFarland Professorship

Dr. M. Katherine Banks, vice chancellor and dean of engineering, has appointed **Dr. Ralph A. Wurbs** holder of the Arthur McFarland Professorship in the Zachry Department of Civil Engineering at Texas A&M University.

Wurbs is a professor in the Water Resources Engineering Division of the civil engineering department and associate director of the Texas Water Resources Institute. His research interests are in water resources planning and management, hydraulics, hydrology and water resources systems analysis.

Wurbs is the developer of the Water Rights Analysis Package (WRAP), which is the generalized model for si river/reservoir system management incorporated in the Texas Commission on Environmental Quality's Water

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Modeling (WAM) System. The continually expanding WRAP/WAM system is extensively applied in support of administration of the statewide water rights permit system and regional and statewide planning.

Wurbs joined the Texas A&M Engineering faculty in 1980. He earned a bachelor's degree from Texas A&M, a master's degree from the University of Texas at Arlington and a Ph.D. from Colorado State University, all in civil engineering.

Fish exposed to SSRIs exhibit abnormal behavior, Baylor study finds

A recent study by Baylor University researchers has found that fish exhibit abnormal behavior and lower levels of anxiety when exposed to Selective Serotonin Reuptake Inhibitors (SSRI), which are common drugs used to treat depression, among other disorders. Published online in the journal Environmental Science & Technology, the study also found that human data for drug activity can be used to predict surface water concentrations of these substances that negatively impact fish behavior.

The Baylor research, which builds on their previous study of pharmaceuticals found in fish downstream of a wastewater treatment plant, has implications not only for the environment but for communities planning to begin wastewater reuse programs.

"This research is an important step in determining the long-term consequences of drugs taken up by fish in the environment and has direct implications for both survival and fitness of fish," said Dr. Bryan Brooks, professor of environmental science and biomedical studies and director of environmental health science at Baylor. He and former Baylor student **Theodore W. Valenti, Jr.**, now a National Research Council post-doctoral fellow with the Environmental Protection Agency, co-authored the article as part of Valenti's dissertation research.

"This helps our understanding of the potential impact of pharmaceuticals in the environment which are accumulating in fish," Brooks said.

In the current study, the shelter-seeking behavior of fathead minnows was monitored under laboratory conditions for 28 days using digital tracking software to diagnose abnormal behavior while they were exposed to the SSRI sertraline, which is used to treat depression, panic attacks and other disorders. Sertraline concentrations and lighting conditions significantly affected the time that the minnows spent in a sheltered area.

During dark conditions, sertraline-exposed fish spent approximately 67 to 78 percent of the time that control fish spent in the shelter. During light intervals, fish exposed to sertraline spent between 18 and 42 percent less time in the shelters.

"The shelter was the only dark area during light conditions in the observation tanks; therefore, control fish apparently retreated to the shelter to reduce anxiety, whereas fish exposed to sertraline appeared to display reduced anxiety and did not exhibit this behavior," Brooks said.

"Based on our observations, we hypothesize that fish exposed to sertraline displayed reduced levels of anxiety and consequently were more willing to explore outside of their shelters during both light and dark conditions. Fish willing to spend more time away from shelters face greater predation risk, and their overall survival rate may be reduce

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Valenti noted that another very interesting aspect of the study was the accuracy of a quantitative model the Baylor researchers used to predict internal fish plasma concentrations when pH of the water was considered. These findings emphasize the importance of accounting for the pH of rivers and lakes during surface water quality assessments of pharmaceuticals and other weak acid and weak base contaminants.

"Conservation and water reuse strategies will become paramount to meet water resource needs of future generations. Understanding emerging risks to water quality, from pharmaceuticals and other contaminants present at trace levels, is equally important to support responsible management decisions and meet environmental protection goals," Brooks added.

Read the full Baylor news release.

TPWD begins lesser prairie-chicken aerial survey

This spring, Texas Parks and Wildlife Department (TPWD) will collaborate with state fish and wildlife agencies from New Mexico, Oklahoma, Kansas and Colorado, West Ecosystems, Inc., and Texas Tech University to conduct a large-scale aerial survey for lesser prairie-chicken booming grounds across the High Plains region in all five states.

Information from these surveys will be used by TPWD and the other state agencies to help conserve the bird in partnership with landowners and private industries, including oil and gas, wind energy and electric utilities, according to TPWD.

"These surveys represent a unique effort by state fish and wildlife agencies across the region to work together to monitor population trends over time and to effectively manage for this species," said Lubbock-based TPWD wildlife diversity biologist **Sean Kyle**. "This information, combined with other ongoing conservation efforts, could help avoid the need to list the lesser prairie-chicken as federally endangered. The surveys will provide more data to inform the US Fish and Wildlife Service's decision about whether to list the species."

TPWD estimated that surveys would begin around **March 24** and continue through mid-May. Read the full TPWD news release.

New Publications/Papers and Training Courses

New Publications/ Papers

Site Suitability Assessment for Irrigating Urban Landscapes with Water of Elevated Salinity in the Southwest Consolidated Final Report Part I. Water Quality and Plant Salt Tolerance, **S. Miyamoto**, Texas Water Resources Institute, TR-416, 2012.

Cedar Creek Watershed Management, **David Waidler, Brent Clayton, Clint Wolfe, Justin Mechell**, Texas AgriLife Extension Service, B-6248, 2012.

Eagle Mountain Watershed Management, **Brent Clayton**, Texas AgriLife Extension Service, B-6249, 2012.

Drivers of Vegetation Change in Texas Rangelands, **Jim Ansley, Charles R. Hart**, Texas AgriLife Extension Service, L-5534, 2012.

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