September 2014

Conservation Matters

THE TEXAS LAND, WATER AND WILDLIFE CONNECTION

Wednesday in Austin: 'No land, no water' event

The Texas Agricultural Land Trust (TALT) is presenting a forum, "No Land, No Water: Tools and Strategies for Conserving Land to Protect Water Resources," **Oct. 1** in Austin.

The free, one-day event is from 10 a.m. to 2 p.m. at the Texas State Capitol Extension Auditorium. **Blair Fitzsimons**, TALT's chief executive officer, will speak on land loss and fragmentation and how those problems affect water resources.

Dr. Roel Lopez, Texas A&M Institute of Renewal Natural Resources director, will present findings from a new Texas Land Trends study. Texas Land Trends is an interactive website and database detailing current land use trends within the state and the impacts of rural land loss and fragmentation on water, agriculture and other natural resources.

Allison Elder, TALT's general counsel, will discuss conservation easements and their benefits and drawbacks, and how they can be an effective tool for land and water conservation.

Fitzsimons and **Alan McWilliams**, director of uplands surface leasing for the Texas Farm and Ranch Lands Conservation program in the Texas General Land Office, will provide an overview of funding strategies from other states and how state money can leverage federal funding. They will also profile the Texas Farm and Ranch Lands Conservation Program.

Dr. Francine Romero, San Antonio Aquifer Protection Initiative board chair, and Fitzsimons will discuss how two of the largest cities in the United States have protected their water supply and boosted their regional agricultural economies.

A continuing Legal Education credit of 1.0 hours will be offered by the State Bar of Texas. For more information, visit txaglandtrust.org.

BST team wins interdisciplinary research award

Texas A&M University's bacterial source tracking (BST) team received the 2014 College of Agriculture and Life Sciences Dean's Outstanding Achievement Award for Interdisciplinary Research at the college's awards ceremony Sept. 10 in the AgriLife Center.

The Dean's Outstanding Achievement Awards are the highest awards in the College of Agriculture and Life Sciences presented to faculty, staff and students, according to **Dr. William Dugas**, acting vice chancellor and dean.

The BST team is a collective effort of Texas A&M faculty and staff dedicated to advancing the knowledge of bacterial pollution in Texas. The team is comprised of **Dr. Kevin Wagner**, associate director of the Texas Water Resources Institute (TWRI); **Dr. Roel Lopez**, director of the Texas A&M Institute of Renewable Natural Resources (IRNR); **Dr. Raghavan**

Srinivasan, director of the Spatial Sciences Laboratory; **Dr. R. Karthikeyan**, associate professor in the Department of Biological and Agricultural Engineering; **Dr. Saquib Mukhtar**, associate department head and Extension program leader in the Department of Biological and Agricultural Engineering; and **Dr. Terry Gentry**, associate professor in the Department of Soil and Crop Sciences.

In the nomination letter, **Dr. Neal Wilkins**, former director of TWRI and IRNR, said the team has "collectively developed and collaborated on research projects to build on bacterial source tracking methodologies and applications in an effort to understand and reduce bacterial pollution in Texas. Since the state of bacterial source tracking and applications have evolved greatly in the past few years, new information becomes available and the team has worked diligently to make this information readily available."

The BST team helped produce the Bacteria Total Maximum Daily Load (TMDL) Task Force Report, which was adopted by the Texas Commission on Environmental Quality and the Texas State Soil and Water Conservation Board for addressing state water quality issues. The team has completed numerous water quality projects for the state agencies over the past several years and continues to aid the development of the Texas *E. coli* Bacterial Source Tracking Library for the identification of human and animal sources of water fecal pollution.

In February 2012 the team organized and held a well-attended "Bacterial Source Tracking: State of the Science Conference" to foster partnerships and knowledge sharing between agencies, academic researchers and stakeholder groups.

To learn more, visit texasbst.tamu.edu.

Meet a scientist: Cristine Morgan

Although she began as a pre-law student at Texas A&M University, **Dr. Cristine Morgan** quickly realized her passion for soil science and made a career out of it. "When I had to sit down and make a choice about what I really wanted to do with the rest of my life, I decided on soil science," she said.

Morgan's interest in law fostered a curiosity in how water was filtered by soil and if it was being cleaned. "Going back to my interest in law, I was originally really interested in how water did or did not get cleaned up by the soil," she said. "I was very interested in remediation, natural filtering of the soil, and kind of an Erin Brockovich thing."

From there Morgan became fascinated with soil physics, because it provided insight into the diversity within the soil profile and its effect on water.

"The reason I fell in love with soil is that I was amazed that you could walk across a field and everything was so different," she said. "You could look at soil in one spot and move over a couple of meters, and it was so very different."

After obtaining both her master's and doctorate degrees in soil science from the University of Wisconsin, Morgan returned to Texas A&M in 2004 as an assistant professor to teach and conduct research in the Department of Soil and Crop Sciences.

Currently, Morgan researches soil hydrology, including how water integrates into the soil profile. "It turns out that understanding how soils change in space can tell you a lot about the water movement," she said.

Rather than extracting soil cores, a common technique, Morgan uses an instrument known as VisNIR that “shines a light on the soil and measures its physical properties.” This technique identifies certain soil traits, such as crop-yield potential and water-holding capacity, which can inform land management decisions.

“In the past, soil physicists have brought the soil into the lab, and I refuse to do that, because the action is happening outside in natural conditions,” she said, “If you take the soil away from its intact condition, you’re reconfiguring how water movement in soil works.”

Dr. Cristine Morgan

Collecting field-based data provides a more complete and accurate representation of the soil. Morgan’s work with VisNIR also helps map the soil for hydrology models so that inferences can be made about future soil conditions, she said.

In addition to research, Morgan currently teaches a class called Problem Solving in Plant Soil Systems, in which she emphasizes ingenuity and independent critical thinking. Students are required to conduct an experiment and make a research poster to present their findings. “They decide what they measure, and they decide what they look at. And the level of creativity I see in our students is really tremendous.”

Morgan is also involved in soil judging, a competitive extracurricular activity that tasks students with describing soil profiles and making inferences about the soil, such as the water-holding capacity and potential uses of the land.

“It gets students out in the field and really seeing soils,” she said. “We study soils in the lab; we study soils in the classroom, but it really gets the students understanding the importance of soils and realizing how variable they are.”

Morgan was a soil judger herself as an undergraduate at Texas A&M, and in 1998 she was part of the first all-female soil judging team to win the national competition.

This year, Morgan and some of the top competitors in soil judging participated in the World Soil Congress in Jeju Island, South Korea, an experience that was both fun and educational, she said. The next World Soil Congress will be held in Brazil in 2018, and Morgan has already started planning for it.

International competitions in soil judging have recently developed thanks to Morgan and her colleagues. In fact, Russia, China and the United Kingdom are starting soil judging competitions in 2015 to celebrate the International Year of Soils as a result of their efforts.

For more information on Morgan’s work, visit her webpage, watch this exclusive Conservation Matters video interview with her. To learn more about her international experience with soil judging, see this AgriLife Today news release.

Quail decline webinars to discuss restoration and monitoring

Texans concerned with the widespread decline of wild quail across the state can learn about measures to stop the loss by tuning in to a series of fall webinars.

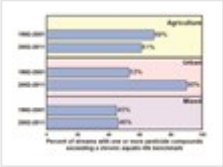
The next webinars are set for **Oct. 9** and **Nov. 13** and are a collaborative effort of the Texas A&M AgriLife Extension Service and the Texas Parks and Wildlife Department. The series is part of the Reversing the Quail Decline in Texas Initiative, coordinated by **Dr. Jim Cathey**, AgriLife Extension wildlife specialist at College Station, and **Dr. Dale Rollins**, retired AgriLife Extension wildlife specialist, San Angelo.

The webinars, all slated from noon to 1 p.m., can be found at www.forestrywebinars.net.

Cathey said the **Oct. 9** webinar will discuss successful quail habitat restoration efforts, while the **Nov. 13** webinar will focus on the Texas Quail Index, a statewide monitoring effort by landowners, AgriLife Extension agents and Texas Parks and Wildlife Department biologists to evaluate quail populations and the factors that affect them.

For more information, contact Cathey at 979.845.7471 or jccathey@tamu.edu, and see the original AgriLife Today news release.

20-year USGS pesticides study shows aquatic life threats, some improvements



Levels of pesticides continue to be a concern for aquatic life in many of the nation's rivers and streams in agricultural and urban areas, according to a new U.S. Geological Survey (USGS) study spanning and comparing two decades (1992–2001 and 2002–2011). However, the pesticide levels seldom exceeded human health benchmarks.

Over half a billion pounds of pesticides are used annually in the United States to increase crop production and reduce insect-borne disease, according to USGS, but some of these pesticides are occurring in water at concentrations that pose a concern for aquatic life.

In streams and rivers draining agricultural and mixed land-use areas, the number of streams with one or more pesticides that exceeded an aquatic-life benchmark was fairly similar between the two decades, but in streams draining urban areas that number was much higher in 2002–2011.

"The information gained through this important research is critical to the evaluation of the risks associated with existing levels of pesticides," said **William Werkheiser**, USGS associate director for water.

Since 1992, there have been widespread trends in concentrations of individual pesticides, some down and some up, mainly driven by shifts in pesticide use due to regulatory changes, market forces, and introduction of new pesticides.

"Levels of diazinon, one of the most frequently detected insecticides during the 1990s, decreased from about 1997 through 2011 due to reduced agricultural use and the U.S. Environmental Protection Agency's regulatory phase-out of urban uses," said **Wesley Stone**, USGS hydrologist.

The potential for adverse effects on aquatic life is likely underestimated in these results, according to USGS, because resource constraints limited the scope of monitoring to less than half of the more than 400 pesticides currently used in agriculture each year and monitoring focused only on pesticides dissolved in water.

The USGS National Water-Quality Assessment Program is continually working to fill these data gaps by adding new pesticides that come into use, such as the neonicotinoid and pyrethroid insecticides, improving characterization of short-term acute exposures, and enhancing evaluations of sediment and other environmental media.

The study, "Pesticides in U.S. Streams and Rivers: Occurrence and trends during 1992–2011," was published in Environmental Science and Technology and is available online. Read the full USGS news release for more information.

New editor joins *Texas Water Journal* editorial board

Dr. Ken Rainwater has been named to the *Texas Water Journal* Editorial Board. He joins **Drs. Kathy Alexander**, **Robert Gulley**, **Robert Mace**, **Todd Votteler** and **Ralph Wurbs** as an editor for the journal. The journal is an online, peer-reviewed journal devoted to the timely consideration of water resources management and policy issues in Texas from a multidisciplinary perspective that integrates science, engineering, law, planning and other disciplines.

Dr. Rainwater is a professor in the Department of Civil and Environmental Engineering at Texas Tech University and served as the director of the Texas Tech University Water Resources Center from 2002 to 2012.

He is a licensed professional engineer in Texas, a Board Certified environmental engineer (AAEE) and a diplomate water resources engineer (AAWRE). He received his bachelor's from Rice University, and master's and doctorate in Civil Engineering from the University of Texas at Austin. Rainwater has 29 years of experience in water resources and environmental engineering.

Private water well screenings coming to Jack, Montague, Palo Pinto and Parker counties

The Texas Well Owner Network will present water well screenings in October for Jack, Montague, Palo Pinto and Parker counties to give residents the opportunity to have their well water tested.

The screenings are presented by the Texas A&M AgriLife Extension Service offices in these counties in conjunction with the Texas Water Resources Institute.

"Private water wells should be tested annually," said **John W. Smith**, AgriLife Extension program specialist. "It is very important that only sampling bags from their respective AgriLife Extension office be used and all instructions for proper sampling are followed to ensure accurate results."

The dates, times and locations for the screenings will be:

- **Oct. 20**, 8:30–10 a.m. at the AgriLife Extension office for Jack County, 100 N. Main St., Jacksboro. A follow-up meeting to explain screening results will be held at 7 p.m. at the Jack County Fair-barn, 1072 Highway 59.
- **Oct. 21**, 8–9 a.m. at the AgriLife Extension office in Montague County, 266 Franklin St., Montague. A follow-up meeting to explain screening results will be held at 7 p.m. at the Montague County Annex, 11339 State Highway 59 North. At this meeting, the Upper Trinity Groundwater Conservation District will also discuss its ongoing programs regarding local groundwater issues.
- **Oct. 22**, 8:30–10 a.m. at the AgriLife Extension office in Palo Pinto County, 221 South 5th St., Palo Pinto.
- **Oct. 22**, 8:30–10 a.m. at the AgriLife Extension office in Parker County, 604 N. Main St., Suite 200, Weatherford.

Smith said for area residents to have their well water tested, they need to pick up a sample bag and sampling instructions from the AgriLife Extension office in their respective county.

The cost is $10 per sample. Samples must be turned in by 10 a.m. for Jack, Palo Pinto and Parker counties and by 9 a.m. for Montague County on the day of the screening. Samples will be screened for common contaminants, including fecal coliform bacteria, nitrates and high salinity.

Smith said it is extremely important for those submitting samples to be at the meeting to receive results, learn corrective measures for identified problems and to improve understanding of private well management.

To learn more about the programs or to find additional publications and resources, go to twon.tamu.edu.

Support for the Texas Well Owner Network program is provided through Clean Water Act nonpoint source funding from the Texas State Soil and Water Conservation Board and the U.S. Environmental Protection Agency.

See the AgriLife Today news release.

Riparian and stream ecosystem workshop set for Oct. 8 in Corpus Christi

The Texas Water Resources Institute's (TWRI) Texas Riparian and Stream Ecosystem Education Program will host a workshop 8 a.m.–4 p.m. **Oct. 8** in Corpus Christi for residents interested in land and water stewardship in the Lower Nueces River, Petronila Creek and Oso Creek watersheds.

The free one-day workshop is being co-hosted by the Texas A&M AgriLife Extension Service office in Nueces County, Nueces River Authority and Coastal Bend Bays Foundation.

The morning session will be at the Hilltop Community Center at 11425 Leopard St.

Afternoon activities will include an outdoor walk along the Lower Nueces River and presentations at Hazel Bazemore Park, located at Farm-to-Market Road 624 at County Road 69.

Nikki Dictson, TWRI and AgriLife Extension program specialist and coordinator of the program, said multiple water quality improvement projects are being conducted around Corpus Christi.

"This workshop is for anyone interested in learning about the importance of riparian areas in those watersheds," Dictson said.

She said the goals of watershed protection planning and implementation are to improve water quality for drinking and recreation, protect habitat for wildlife, enhance awareness and promote stewardship through stakeholder engagement, as well as improve aesthetics and environmental integrity to improve quality of life.

The training will focus on the nature and function of stream and riparian zones as well as the benefits and economic impacts from proper functioning riparian systems, Dictson said.

"A riparian zone is the land area adjacent to the bank of a stream, creek or river. A properly functioning riparian system is a river's first line of defense from pollutants."

Dictson said workshop topics will include riparian and watershed management principles, water quality, riparian vegetation, hindrances to healthy riparian areas, stream processes, management practices and local resources.

Workshop presentations will be given by representatives from TWRI, the U.S. Department of Agriculture's Natural Resources Conservation Service, Texas Parks and Wildlife Department, AgriLife Extension, the Nueces River Authority and the Coastal Bend Bays Foundation.

"The goal is for participants to better understand riparian and watershed processes, see the benefits of healthy riparian areas and know what resources are available to prevent degradation while improving water quality," Dictson said.

RSVP is required for the workshop, and a catered lunch is offered for $10 cash on the day of the event. Attendees may also elect to bring their own lunch, as the program includes a lunchtime presentation.

Attendees must RSVP by **Oct. 3** to Dictson at 979.458.5915 or n-dictson@tamu.edu, or online at texasriparian.org/trainings/upcoming-training-locations.

Jason Ott, AgriLife Extension agent for Nueces County, said participants will receive a certificate of completion and appropriate continuing education unit certificates at the conclusion of the training.

The workshop offers over five types of continuing education units including three units — two general and one integrated pest management — for Texas Department of Agriculture pesticide license holders. It offers one unit from TWRI, and six hours for Texas Nutrient Management Planning specialists. The program may also be used for continuing education units for professional engineers.

The riparian education program is managed by TWRI, and it is funded through a Clean Water Act grant provided by the Texas State Soil and Water Conservation Board and U.S. Environmental Protection Agency.

For more information, contact Dictson or visit texasriparian.org.

Drought loans available to South Texas agricultural producers

Agricultural producers who suffered drought losses in 2013 are urged to apply for disaster emergency loans as soon as possible, said a Prairie View A&M University-Extension agent and farm adviser for Hidalgo County.

“Producers who have lost at least 30 percent of their production or suffered production losses caused by drought between **April 1, 2013**, and **Oct. 31, 2013**, are eligible for emergency loans from the U.S. Department of Agriculture’s Farm Service Agency,” said **Vidal Saenz**, who manages the Small Farm Outreach Training and Technical Assistance Program, administered by the Cooperative Extension Program at Prairie View A&M University.

“Farmers or ranchers can contact me in Edinburg for assistance in applying for these loans,” Saenz said.

Saenz has been helping farmers apply for loans since 1994, processing more than 700 loan applications totaling nearly $100 million. The maximum amount of direct emergency loans can be equal to the losses, minus proceeds from crop insurance and/or hazard insurance, Saenz said. Producers in Cameron, Hidalgo, Starr, Willacy and Zapata counties are eligible for the loans.

Arnulfo Lerma, FSA farm loan manager in Edinburg, urges producers to submit their applications as soon as possible.

“We hope farmers will get their applications in early rather than waiting until near the deadline, which is **Dec. 23**,” he said. “The longer they wait, the more chance there is for long delays. If the applications come in early, we can avoid backlogs and speed up the process.”

For more information, or to set up an appointment for assistance in applying for a loan, contact Saenz at 956.383.1026.

See the AgriLife Today news release.

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