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Conservation Matters

THE TEXAS LAND, WATER AND WILDLIFE CONNECTION

New txH2O showcases land and water stewardship

The Texas Water Resources Institute's (TWRI) Winter 2014 issue of *txH$_2$O* is now online. This new issue focuses on the key connection between rural private lands, and land and water stewardship. Beginning with its beautiful cover photo, taken by **Robert Stubblefield** of the Texas Tech University Center at Junction, the magazine is full of informative articles, captivating photos and helpful resources.

"Texas is losing working lands faster than all other states, and this rapid loss of working lands has tremendous implications for our state's water — both its quality and quantity," said **Dr. Roel Lopez**, TWRI interim director, in *txH$_2$O*.

Such private rural working lands are featured in the lead story, Conserving private lands conserves water, which looks at what private land stewardship means and the importance of private lands to the state's water resources. The next story spotlights three award-winning landowners committed to conserving their land, and another highlights a unique program that markets water as a crop.

Empowering landowners highlights a few of the many Texas A&M AgriLife Extension Service programs that promote good stewardship practices to rural landowners, and the following story presents research findings from three researchers studying the barriers to landowners adopting best management practices on their land. The importance of Texas Land Trends and its new report in guiding conservation efforts and natural resource policy development is underscored in Tracking the Trends.

This issue also covers the Texas Water Observatory Network, a Texas A&M University initiative in development by a group of Texas A&M researchers that will help predict and plan for Texas' water future. Look for more about the network in future issues.

Finally, the issue looks back at TWRI's history. This year is the 50th anniversary of the federal Water Resources Research Act, which formally established water resources research institutes in all 50 states. Following the act, **Gov. John Connally** and the Texas Legislature designated TWRI as the state institute for Texas.

If you are not a subscriber to *txH$_2$O*, you can subscribe to this magazine at twri.tamu.edu/publications/subscribe.

Geographic Information Systems training course set for Jan. 20-21 in College Station

The Texas A&M Institute of Renewable Natural Resources (IRNR) will conduct an Introduction to ArcGIS 10 training course **Jan. 20-21, 2015** in College Station.

The course will be 8 a.m.-5 p.m. both days at the institute, 1500 Research Parkway, Room 200, in Texas A&M Research Park.

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The course teaches the range of functionality of the software and the essential tools for visualizing, creating, managing and analyzing geographic data, according to **Amy Snelgrove**, IRNR program manager and instructor for the course.

Snelgrove has both Certified GIS Professional and Comptia Certified Technical Training certifications.

“The exercises of this hands-on course emphasize practice with ArcMap and ArcCatalog to perform common GIS tasks and workflows,” Snelgrove said. “Students will learn the tools for creating and managing geographic data, displaying data on maps in different ways, and combining and analyzing data to discover patterns and relationships. By the end of the course, they will be prepared to work with the software on their own.”

The course fee is $500 and includes refreshments, course materials and a certificate of completion.

“The fee minus a nonrefundable processing fee will be refunded if the institute receives notice of cancellation at least six business days prior to the class start date,” Snelgrove said.

The registration form is available on the course’s web page. Classes are limited to 10 participants.

Snelgrove said five additional 2015 dates have been set for the course: **March 11-13**, **May 12-13**, **July 8-9**, **Aug. 18-19** and **Oct. 21-22**. On-site training can also be scheduled by contacting Snelgrove at amy-snelgrove@tamu.edu.

For more information, visit the website or email Snelgrove.

Meet a scientist: Jay Angerer

When **Dr. Jay Angerer** earned his bachelor’s in rangeland management from Texas Tech University in 1986, he had no idea that his job would one day take him around the world.

Angerer began his education at Texas Tech studying wildlife. But after taking a course on plant ecology that piqued his interest, he switched to focusing on rangeland management. He later went on to earn a master’s in range science and a doctorate in rangeland ecology and management, both from Texas A&M University.

Now, Angerer is an assistant professor specializing in agroecological modeling at the Center for Natural Resource Information Technology within Texas A&M AgriLife Research’s Blackland Research and Extension Center in Temple.

Through research on vegetation and climate data from satellite remote sensing, Angerer and his colleagues have developed simulation modeling tools and Livestock Early Warning System technologies. This system helps livestock producers in the United States and abroad determine the best management decisions for their herds based on factors such as water and forage availability, he said.

“Right now we’ve got coverage of the whole country of Mongolia, and we have most of the pastoral regions in Kenya, Tanzania and Ethiopia,” Angerer said. Tools used internationally have also been brought back to the United States.

According to Angerer, data including local livestock health, climate and soil conditions are collected from various monitoring sites, and the modeling system then “fills in the gaps,” making estimations for the areas not covered.

The system not only assesses current field conditions, but it can also predict up to 60 days in the future, he said. Based on real-time data, livestock producers can see potential forage shortages or droughts and adjust accordingly.

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“Our web pages have the maps, the conditions and the monitoring sites that someone could look at and get specific, very detailed information if they wanted to,” Angerer said. The information can also be disseminated through the local government or nongovernmental organizations via radio stations, bulletin boards, mail or email.

Dr. Jay Angerer

Angerer and his colleagues have also incorporated other modern technologies such as mobile phones into their monitoring efforts. Using their smart phones, people can take pictures of livestock body conditions and watering holes used by livestock. “Local data and pictures collected from smartphones are very useful in confirming model outputs and in providing visual evidence of conditions,” Angerer said.

“It had never crossed my mind when I was working on my bachelor’s in the 80s — we were still using floppy disks!”

Angerer’s international work on the Livestock Early Warning System began with a three-week trip to Kenya, Tanzania and Uganda in 1998. The trip consisted of collecting data and meeting with local partners and government agencies that would use the data. “It was pretty eye-opening,” he said.

Unfortunately, international work can come with challenges. Angerer recalled the 2012 military coup in the West African country of Mali, causing their project to be suspended. Despite such turmoil and disappearing funding, the monitoring efforts have continued locally. “It’s really surprising after all the problems they had that they kept it going, and it’s still going today,” he said.

The next destination for Angerer is Brazil, working on an ongoing collaboration between the Blackland Center and the Brazilian Agricultural Research Corporation, or Embrapa. The centers have teamed up on research using near-infrared reflective spectroscopy to understand the quality of sheep and goat diets by studying manure.

Other potential projects and collaborations that Angerer is anticipating include introducing the Livestock Early Warning System to the highlands of Peru and also expanding the monitoring system in East Africa.

What Angerer said he enjoys most about his work is the friends he has made and seeing the similarities across cultures. “When you go out and talk to pastoralists or ranchers in the field, they have a lot of the same concerns, especially with drought. They ask, ‘What’s going to happen to my animals?’ ‘How am I going to take care of them?’ ‘When are conditions going to improve?’”

“It’s been a nice, fun job. Growing up on a cotton farm in Lubbock, I didn’t think I would be doing this.”

To learn more about Jay Angerer, read his faculty profile. For more information on the Center for Natural Resource Information Technology, see its website.

Texas Water Journal to moderate water forum Jan. 20 in San Marcos

The Texas Water Journal, an online, peer-reviewed journal about Texas water issues, will present its third Texas Water Journal Forum, “The History of the Edwards Aquifer Dispute: A View from the Trenches,” **Jan. 20** in San Mar

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The journal is published jointly by The Texas Water Journal, a nonprofit organization, and the Texas Water Resources Institute.

The forum will be held 9 a.m.-4:15 p.m. on the 11thfloor of the JC Kellam Building on the Texas State University campus. Texas State's Department of Geography and The Meadows Center for Water and the Environment are hosting the forum.

The forum is free for those not wanting lunch, including Texas State University faculty and students, and registration is $40 for the forum with lunch and parking. Registration is required for all attendees and is available available on Texas State's Department of Geography's website at geo.txstate.edu.

"This forum will focus on the early years of the almost 60-year conflict over the use of the Edward Aquifer," said **Dr. Todd Votteler**, the journal's editor-in-chief and executive manager of science, intergovernmental relations and policy for the Guadalupe-Blanco River Authority.

"This is our first forum devoted to a specific Texas water dispute and will feature many of the prominent players from the dispute," he said.

Dr. Robert Gulley, a journal editor and former executive director of the Edwards Aquifer Habitat Conservation Plan and former Texas A&M Institute of Renewable Natural Resources program coordinator for the Edwards Aquifer Recovery Implementation Plan, said the forum will provide an opportunity to create and preserve a living oral history of the Edwards Aquifer dispute.

Gulley said the panelists will discuss the early years of the dispute, which centered on the struggle between the city of San Antonio and downstream environmental and agricultural interests over the aquifer's use. When voluntary efforts to resolve the dispute failed, groundbreaking litigation resulted, leading to the Texas Legislature creating the Edwards Aquifer Authority to manage withdrawals from the aquifer, he said.

"The forum should be an exciting opportunity for those interested in the history of the Edwards Aquifer as well as those interested in the evolution of water disputes to get a first-hand perspective on one of the nation's most protracted and acrimonious water wars," Gulley said.

In addition to Votteler and Gulley, who will serve as moderators for two of the panels, forum panelists include:

- **Senator Ken Armbrister**, Texas Senate and former director of legislative affairs for Governor Rick Perry
- **Luana Buchner**, Edwards Aquifer Authority chairperson; former Medina County Underground Water Conservation District general manager
- **John Hall**, Environmental Defense Fund's Texas state director of clean energy; former Texas Water Commission chairman
- **Stuart Henry**, counsel for the Sierra Club in Sierra Club v. Babbitt and Sierra Club v. City of San Antonio
- **Russ Johnson**, McGinnis Lochridge & Kilgore partner; counsel for the city of San Antonio in Sierra Club v. Babbitt and Sierra Club v. City of San Antonio
- **Ken Kramer**, Sierra Club's Lone Star Chapter former director
- **Weir Labatt**, Western States Water Council chairman; former Texas Water Development Board member; former San Antonio City Council member
- **Robert Puente**, San Antonio Water System's chief executive officer and president; former Texas Representative
- **Peter Schenkka**n, Graves Doughert Hearon & Moody partner; counsel for the Sierra Club in Sierra Clu Sierra Club v. City of San Antonio

- **Charlie Shockey**, former U.S. Department of Justice senior trial attorney in Sierra Club v. Babbitt and Sierra Club v. City of San Antonio
- **Michael J. Spear**, former U.S. Fish and Wildlife Service regional director
- **John Specht**, former Guadalupe-Blanco River Authority general manager from early 1970s until 1994
- **Bill West**, Guadalupe-Blanco River Authoritygeneral manager since February 1994

Glenn Hegar, Texas Comptroller-elect and author of Senate Bill 3 that created the Edwards Aquifer Recovery Implementation Program, will be the keynote speaker for the forum. With a legislative session on the horizon, the forum also will include with a discussion by key Texas legislators, including **Representatives Doug Miller** and **Lyle Larson**, on the future of water in the Edwards Aquifer region, Votteler said.

“We invite the interested public to join the panel as we explore this complex water issue,” Votteler said. “Future journal forums may address the resolution of the Edwards Aquifer dispute and other efforts to reach consensus on complex water issues.”

For more information, contact Votteler at thvotteler@gmail.com. To read the journal, visit texaswaterjournal.org.

More than 2,000 paddlefish released in Caddo Lake after flows adjusted

After decades of absence from Caddo Lake, the American paddlefish, an ancient North American fish, began making a comeback earlier this year.

In March 2014, the Texas Parks and Wildlife Department (TPWD) and the U.S. Fish and Wildlife Service released 47 young paddlefish from the Tishomingo National Fish Hatchery in Oklahoma into Big Cypress Creek, a tributary of Caddo Lake. After initial success, an additional 2,000 paddlefish were released in September.

This is not the first attempt to re-establish the paddlefish in Caddo Lake following its disappearance after construction of the Ferrell’s Bridge Dam on Big Cypress Creek. But, this reintroduction differs from previous attempts because water releases from the dam were adjusted prior to the paddlefish’s arrival. The dam, which created the Lake O’ the Pines Reservoir, was built for flood control and water supply in Jefferson and the surrounding cities.

To re-establish the paddlefish population, the Caddo Lake Institute and The Nature Conservancy coordinated with the U.S. Army Corps of Engineers and the Northeast Texas Municipal Water District, as part of the Cypress Basin Flows project, to adjust the flows into the lake to better support the species’ needs.

“We’ve prepared the way this time,” said **Rick Lowerre**, president of Caddo Lake Institute. “I think before they were just reintroduced without anybody thinking about what changes might be needed to encourage them to stay.”

The idea to reintroduce the paddlefish came from a 2005 report by Texas A&M University scientists, including **Dr. Kirk Winemiller**, an aquatic ecologist in Texas A&M‘s Department of Wildlife and Fisheries Sciences. Winemiller said the report demonstrated the importance of natural flows into Caddo Lake and described lake conditions before Ferrell’s Bridge Dam was built. The scientists suggested that, once re-established in the lake, paddlefish could serve as an indicator species, alerting managers and stakeholders to changes in the ecosystem.

The paddlefish’s sensitivity to flows and its threatened status make it an ideal indicator species, Winemiller said.

Animal species, both aquatic and terrestrial, are responsive to the magnitude and timing of river flows, the re
fishes rely on flows to stimulate spawning and migration and to facilitate dispersal and survival in early life st

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the spring, when flows would increase, rocky shoals in Big Cypress Creek were used by paddlefish and other fish species for spawning.

Animals aren't the only ones affected. Riparian trees, such as the bald cypress, use high flow pulses to transport their seeds. Flows also create appropriate soil moisture conditions for germination and seedling survival.

"The whole project is really more than just the paddlefish," said **Tim Bister**, the local fisheries biologist with TPWD. "The bigger picture is creating a more natural river flow throughout the year by having certain water releases from Lake O' the Pines mimic that natural river flow."

The flows project should be thought of more as rehabilitation rather than restoration, Winemiller said.

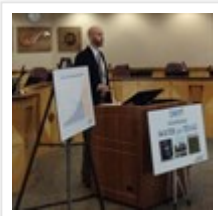
Experts agreed that the flows will likely never be fully restored to their original state, but they say that the flows can be managed so that the needs of both the environment and people are met.

"The Caddo Lake situation is a model for the rest of the state," Winemiller said, referring to the collaboration between the participating entities on the flows project. "Hopefully, in the future, we will see more cooperative efforts like this in other parts of the state."

To learn more about the paddlefish reintroduction, visit Caddo Lake Institute's website or The Nature Conservancy's website. Also, see the Texas Parks and Wildlife Magazine article on the paddlefish release.

Look out for more in-depth coverage of this story in the next txH_2O.

Texas Water Development Board SWIFT application process now open



During the 2013 legislative session, the Texas Legislature passed a bill and Texas voters later approved a constitutional amendment, known as Proposition 6, allowing for the creation of the State Water Implementation Fund for Texas (SWIFT). The proposition enabled a one-time investment of $2 billion from the state's Rainy Day Fund to provide low-cost loans for water projects in Texas. The application process for the initial funding is now open and ends **Feb. 3, 2015**.

SWIFT provides financing for projects in the state water plan, and "will allow the Texas Water Development Board (TWDB) to provide financial assistance to important water projects around the state that will provide additional water supplies to urban and rural citizens," said TWDB Chairman **Carlos Rubinstein** in a news release.

SWIFT offers a variety of low-cost loan options to accommodate the diversity of projects in the state water plan. At least 20 percent of the projects to be funded have to support water conservation or reuse and at least 10 percent have to support projects serving rural communities and agriculture, according to the TWDB SWIFT website.

Any political subdivision of the state or a non-profit water supply corporation with a project included in the 2012 State Water Plan can apply for SWIFT funding. Political subdivisions include municipalities, counties, river authorities, special law districts, water improvement districts, water control and improvement districts, irrigation districts and groundwater conservation districts.

The SWIFT project priorities established by TWDB are that the projects serve a large population, assist diverse urban and rural populations, provide regionalization and meet a high percentage of water users' needs, said **Doug Shaw**, TWDB's agriculture and rural Texas ombudsman, at a December press conference in College Station.

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“A thousand people are coming to Texas daily, and none of them are bringing water,” said **Kathleen Jackson,** TWDB SWIFT program director and board member. She said TWDB is not just providing finances but is also available to help one-on-one with discussing challenges, creating relationships and talking about options and other resources.

Submitting an abridged application is the first step to receive financial assistance from SWIFT. Abridged applications will be solicited up to two times each year and will be used to prioritize projects for funding. Abridged applications are due by **Feb. 3, 2015**. Invitations to submit full applications will be extended to those projects within the limits of available funding.

In the first 10 years of funding, the TWDB anticipates approximately $800 million will be available each year for projects.

Academy for Ranch Management hosting prescribed burn trainings in February and March

The Academy for Ranch Management will host two rangeland burning schools in February and March at the Texas A&M AgriLife Research station located on State Highway 55 between Sonora and Rocksprings.

A Prescribed Rangeland Burning School will be held **Feb. 19-21, 2015,** according to **Ray Hinnant**, AgriLife Research senior research associate. This workshop will provide an overview of prescribed burning and includes information on the history of fire, weather, planning a burn, fuels and fuel moisture, and equipment.

The Advanced Rangeland Burning School **March 6-8, 2015** will build on the previous school, providing more information on fire behavior, fire effects, and planning and conducting a prescribed burn, Hinnant said.

The cost for each event is $395, which will include meals and lodging. In addition, Hinnant said, there will be a $45 facilities-use fee due upon arrival for each school.

The Academy for Ranch Management is a program of AgriLife Research and the Texas A&M University Department of Ecosystem Science and Management. The Sonora facilities provide a teaching laboratory for hands-on experience.

For more information and registration, see www.agrilife.org/arm or contact Hinnant at ray.hinnant@gmail.com or 979.820.1778. Read the full AgriLife Today article for training details.

14th National Watershed Conference coming to Fort Worth in May

The National Watershed Coalition (NWC) has announced the 14th National Watershed Conference and National Watershed Program Partner Summit, which will be held at the Worthington Renaissance Fort Worth Hotel in downtown Fort Worth **May 17-20, 2015**.

The event is being presented in partnership with the Texas Association of Watershed Sponsors, Texas State Soil and Water Conservation Board, Texas Association of Conservation Districts, Tarrant Regional Water District, and the USDA Natural Resources Conservation Service in Texas. The conference will address both current and future water resource issues related to conservation, management, water quality and flood protection on a watershed scale.

The 2015 program will highlight opportunities for combining resources from the portfolio of complimentary state and federal agency programs. The goal of the conference program committee is to provide a blend of presentations that address efforts to create safe, productive and healthy watersheds using a wide variety of resources, according to the committee.

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NWC is currently soliciting abstracts for presentations that address USDA Watershed Program specific concerns. All accepted papers will be eligible for publication in the conference proceedings. Send abstracts to Dr. Dan A. Sebert at nwchdqtrs@sbcglobal.net. The abstract deadline is **Jan. 16, 2015**. For additional information about the call for abstracts and for registration, visit watershedcoalition.org.

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