
## Meet a scientist: Georgianne Moore

Whether it's on an island off the coast of Georgia, under the canopy of a rainforest in Costa Rica or in the arid Trans-Pecos in West Texas, for Dr. Georgianne Moore, working in the field is where she feels most at home.

Now an associate professor in Texas A&M University's Department of Ecosystem Science and Management, Moore was raised on a farm in Georgia's Piedmont region and spent most of her childhood outdoors — a lifestyle she has applied to her current research practices.

"I have for a long time been interested in natural resources," Moore said. "Working in the field is what keeps me enjoying my work."

Moore originally enrolled at the Georgia Institute of Technology with the intent to continue on to medical school, but, influenced by several of her professors, became interested in plant ecology and hydrology.

After earning her bachelor's in applied biology, Moore went to work for the University of Georgia Marine Institute, where she experienced her first taste of research.

"I was responsible for collecting data, maintaining equipment and providing support for a lot of the research that was going on," she said. "Ever since then I've been in love with field stations."


Moore conducted further research at the H.J. Andrews Experimental Forest ecological research site while attending Oregon State University and received her doctorate in environmental sciences, with an emphasis in small watershed hydrology and forest ecology.

"I stayed on-site for most of summer, living in its dorms, going out in the field every day and spending a lot of time in the forest," she said. "I worked with older trees that were just majestic."

Moore's post-doctoral work with Texas A&M AgriLife Research in ecohydrology — the study of the role of plants in the water cycle — led her to the Pecos desert and Rio Grande in New Mexico and Texas. That dry environment was a stark contrast to her previous research sites in the Pacific Northwest old-growth forests of Douglas fir, cedar and hemlock trees and the rugged terrain of the western Cascade Mountains.

"I didn't think I would stick around for very long," Moore said. "But what I enjoy about being in Texas is that Texas has fascinating water resource problems."

The severe drought in 2011, for instance, prompted Moore and her team to study native Texas trees that died during the drought and understand how and why different species survived. This study further developed into controlled experiments in which seedlings were deliberately exposed to fatal environmental conditions to better explain the deterioration and eventual death of trees.

While water supply is a critical component for most of ecohydrology, Moore's research in Costa Rica has indicated that tropical environments with abundant rainfall influence plant behavior through a variety of other ecological factors.

"It's completely different in the tropics," she said. "There's plenty of water, and other things are changing how plants behave."

Two or three times a year, Moore returns to the Soltis Center for Research and Education, Texas A&M's rainforest field station near the Costa Rican town of San Isidro de Penas Blancas, where she helps lead a major federally funded project and supervises a doctoral student.

Much of the research is conducted on an aluminum walkup tower made of 21 six-foot scaffolding sections that allows the scientists to access various heights for sampling purposes. They collect data using instruments that analyze the microclimate of the forest, such as electronic artificial leaves that estimate the wetness of leaves after rainfall.

The team measures water vapor within the forest and other environmental components that affect evaporation and growth rates of the trees. This could inform global climate models and aid in understanding weather forecasts and climate change.

"A lot of the moisture in the earth's atmosphere in the whole world is evaporated from oceans and tropical forests," she said. "[Changes in the tropical forest] will affect the global climate because of the changes in the water vapor in the atmosphere."

Reflecting on the direction of her research over the years, Moore said her focus has shifted away from location-specific water issues to much broader subjects related to ecosystems, global climate change and drought.

This approach is likely to continue into future research, she said, as apparent in a recently launched project called the Texas Water Observatory.

The observatory will become a network of sites designed to monitor and understand water cycles, beginning in the Brazos Valley and eventually expanding to include different climate gradients of the state, Moore said.

"There are other places in the country where similar networks are in place, but we're going to be doing this differently," she said, "a bit more state of the art, and really try to make an impact on water research in Texas that has so far lacked a place to tie it all together."

The project received short-term funding from the Research Development Fund at Texas A&M, with contributions from the College of Agriculture and Life Sciences, College of Geosciences and Dwight Look College of Engineering. Moore is confident that it will develop into an independently-operated, long-term monitoring network that will pay large dividends and grow into major projects.

For more information on Moore's work, visit her lab's website.

## Aggies hosting Annual Turfgrass Field Day Oct. 14

The Texas A&M Turfgrass and Landscape Field Day will be held Oct. 14 at the Texas A&M AgriLife Turfgrass Field Lab in College Station.

“This year the Texas Sports Turf Managers Association will host an added tour of the Texas A&M athletic facilities, in addition to all the traditional topics we try to cover during our annual field day,” said Dr. Richard White, Texas A&M AgriLife Research turfgrass management scientist and field day coordinator.

The field day will feature AgriLife Research, Texas A&M AgriLife Extension Service and Texas A&M University Department of Soil and Crop Sciences faculty, staff and students.

Topics of discussion will be turfgrass selection and management, irrigation management and drought recovery, pest management, golf course fairway and sports field construction, and new technologies and educational demonstrations.

The program will begin with registration from 7:45 to 8:30 a.m., followed by a welcome and concurrent sessions from 8:45 a.m. to noon. Afternoon events will include a campus athletic facilities tour from 1:30 to 4 p.m. All participants are asked to park at the Thomas G. Hilderbrand, DVM ’56 Equine Complex at 3240 F&B Road, adjacent to the Turfgrass Field Lab.

Preregistration for the morning and afternoon activities is required and available at aggieturf.tamu.edu. For more information, contact White at rh-white@tamu.edu or 979-845-1550.

Read the full AgriLife Today news release for more event details.

## Register by Oct. 12 for the Texas Watershed Planning Short Course

The Texas Water Resources Institute (TWRI) will host the Texas Watershed Planning Short Course Oct. 19-22 near Bandera. The four-day course will be held at the Mayan Dude Ranch, 350 Mayan Ranch Road, about 47 miles northwest of San Antonio.

“Watershed protection plans and the stakeholder-driven watershed planning process instilled through the course have become the foundation for water quality improvement efforts in Texas,” said Dr. Kevin Wagner, TWRI associate director and course leader.

Wagner said the course is one of the few in the country that builds upon the nine essential elements for watershed planning, as identified by the U.S. Environmental Protection Agency (EPA).

“Practitioners developing both watershed protection plans and total maximum daily load implementation plans have participated in the course and are now using the techniques they learned during the course to address water quality issues statewide,” he said.

In addition to EPA’s nine elements, the course provides watershed coordinators and water resource professionals with guidance on stakeholder coordination, education and outreach, data collection and analysis, and the tools available for plan development.

“This information is presented through lectures and case studies,” said Nikki Dictson, Texas A&M AgriLife Extension Service program specialist for TWRI.

The upcoming short course is the eighth such program to be held. Support for the short course is provided through Clean Water Act nonpoint source funding from the Texas State Soil and Water Conservation Board (TSSWCB) and EPA.

Wagner added that more than 50 watershed planning efforts and total maximum daily load implementation plans have benefited from the training. Most of the plans have been financed by EPA through TSSWCB and the Texas Commission on

Environmental Quality, the two state agencies responsible for Texas' water quality.

Course registration is $400 and will remain open until Oct. 12.

Dictson said a block of rooms at the Mayan Dude Ranch has been reserved at a special rate of $122 per night, which includes all meals and lodging, but reservations must be made by Oct. 12 to receive this special rate. Participants are asked to identify themselves as Texas Water Resources Institute short course attendees when making reservations.

For more information on the course, registration and lodging, go to nrt.tamu.edu/schedule or contact Dictson at n-dictson@tamu.edu.

## Department of Biological and Agricultural Engineering presenting seminar series

The Department of Biological and Agricultural Engineering at Texas A&M University will host an interdisciplinary seminar series this fall featuring experts in hydrology, agricultural technology, modeling, soil sensing and more.

The series, "Science and Engineering for Sustainability," has lectures on Wednesdays in Scoates Hall, room 208. There is a reception at 3:30 p.m. before each 4:10 p.m. presentation. Dates, speakers and topics are:

- Sept. 30, Dr. Karen McDonald, University of California – Davis, plant cell bioreactor
- Oct. 7, Dr. Daren Harmel, U.S. Department of Agriculture – Agricultural Research Service (USDA-ARS), long-term agricultural research network
- Oct. 21, Dr. Chris Scott, University of Arizona, water governance
- Oct. 28, Dr. Steve Evett, USDA-ARS, soil moisture sensing
- Nov. 4, Dr. Mukesh Kumar, Duke University, hydrologic modeling
- Nov. 11, Dr. Jeff Basara, University of Oklahoma, hydrometeorologic monitoring
- Nov. 18, Dr. Ganti Murthy, Oregon State University, biosystems modeling
- Dec. 2, Dr. William Kustas, Hydrology and Remote Sensing Lab, evapotranspiration

More information is available from the department.

## Private water well screenings coming to North Texas counties in October

The Texas Well Owner Network will offer screenings in October for Somervell, Hood, Palo Pinto, Parker and Wise counties to give residents the opportunity to have their well water analyzed for common contaminants.

The Texas A&M AgriLife Extension Service and Texas Water Resources Institute are partnering on the program.

"Private water wells should be tested annually for common contaminants," said John W. Smith, AgriLife Extension program specialist.

He said those submitting samples should only use sampling bags and bottles from their county AgriLife Extension office and follow the included instructions carefully to ensure accurate results. A $10 per sample fee will be collected when bags and

bottles are picked up by participants. Bottles and bags will be available at least a week before the turn-in dates.

Samples will be screened for common contaminants, including total coliform bacteria, *E. coli*, nitrate-nitrogen and salinity.

Dates, times and locations for the screenings are:

- Oct. 19, 8:30–9:30 a.m. Sample bags and bottles should be turned in at the AgriLife Extension office for Somervell County, 1405 Texas Drive in Glen Rose. This is a collaborative effort with Prairielands Groundwater Conservation District. A follow-up meeting to explain screening results will be held at 6 p.m. Oct. 20 at the Texas Forest Service building, 450 Howard Clemmons Drive in in Granbury.
- Oct. 19, 8:30–10 a.m. Sample bags and bottles should be turned in at the AgriLife Extension office for Hood County, 1410 W. Pearl St. in Granbury. A follow-up meeting to explain screening results will be held at 6 p.m. Oct. 20 at the Texas Forest Service building, 450 Howard Clemmons Drive in Granbury.
- Oct. 20, 8:30–9:30 a.m. Sample bags and bottles should be turned in at the AgriLife Extension office for Palo Pinto County, 221 S. 5th Ave. in Palo Pinto. A follow-up meeting to explain screening results will be held at 6 p.m. Oct. 21 at the AgriLife Extension office for Parker County, 604 N. Main St. in Weatherford.
- Oct. 20, 8:30–10 a.m. Sample bags and bottles should be turned in at the AgriLife Extension office for Parker County, 604 N. Main St. in Weatherford. A follow-up meeting to explain screening results will be held at 6 p.m. Oct. 21, also at the AgriLife Extension office.
- Oct. 21, 8:30–10 a.m. Sample bags and bottles should be turned in at the AgriLife Extension office for Wise County, 206 S. State St. in Decatur. A follow-up meeting to explain screening results will be held at 6 p.m. Oct. 22 at the Wise County Fairgrounds, Women's Building, 3101 S. Farm-to-Market Road 51 in Decatur.

At the programs for Hood, Palo Pinto, Parker and Wise counties, Jillian North, assistant general manager from the Upper Trinity Groundwater Conservation District, will also discuss ongoing water quality programs.

For more information for the Hood County screening, call 817.579.3280. For the Palo Pinto County screening, call 940.659.1228. For the Parker County screening, call 817-598-6168. For the Somervell County screening, call 254.897.2809. For the Wise County screening, call 940.627.3341.

To learn more about programs offered through the Texas Well Owner Network 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.

Read the full AgriLife Today article for more information.

## IRNR to conduct GIS training Oct. 21-22 in College Station

The Texas A&M Institute of Renewable Natural Resources (IRNR) will conduct an Introduction to ArcGIS 10 training course Oct. 21-22 in College Station.

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

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, a program manager for IRNR 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,” she 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.

More information and registration are available on the course’s webpage. Classes are limited to 10 participants. On-site training can also be scheduled by contacting Snelgrove at amy-snelgrove@tamu.edu.

## Call for Special Sessions issued for annual UCOWR and NIWR conference

The conference planning committee for the Universities Council on Water Resources (UCOWR) and National Institutes of Water Resources (NIWR) has issued a Call for Special Sessions for their annual Water Resources Conference, which will be June 21-23, 2016, in Pensacola Beach, Florida. Conference discussions will focus on critical water issues in the southeastern United States as well as across the continent and globe.

Special sessions can be panel discussions or a group of four to six oral presentations on a specific topic. Proposals for the special sessions will be evaluated by the conference planning committee based on the topic’s timeliness and relevance and the degree to which the topic will bring together key researchers and practitioners to disseminate recent advances to the water resources community.

Those interested in proposing, organizing and hosting a special session should provide the following information no later than Oct. 19 to Dr. Kevin Wagner, technical program chair and Texas Water Resources Institute associate director, at klwagner@ag.tamu.edu:

- Title of proposed special session
- A brief description of less than 350 words stating the importance of the topic and the rationale for the proposed session
- Organizer(s), including contact information
- List of potential presenters (to submit abstracts via the general call for abstracts) and their topics, if available

For more information, visit the conference website. Further questions about the 2016 UCOWR/NIWR Conference can be directed to Karl Williard, UCOWR executive director, at williard@siu.edu, or Melissa Pind, UCOWR administrative assistant, at ucowr@siu.edu.

## Greater sage-grouse not listed under ESA following conservation campaign

The U.S. Fish and Wildlife Service (FWS) has concluded that the greater sage-grouse does not warrant protection under the Endangered Species Act (ESA). According to the U.S. Department of the Interior (DOI), an unprecedented, landscape-

scale conservation effort across the western United States has significantly reduced threats to the rangeland bird across 90 percent of the species' breeding habitat and enabled the decision.

U.S. Secretary of the Interior Sally Jewell made the announcement Sept. 22 with a video explaining why the decision is historic and sets the groundwork for a 21st-century approach to conservation.

FWS reached this determination after evaluating the bird's population status, along with the collective efforts by the Bureau of Land Management and the U.S. Forest Service, state agencies, private landowners and other partners to conserve its habitat, according to DOI. Despite long-term population declines, sage-grouse remain relatively abundant and well-distributed across the species' 173-million acre range. After a thorough analysis of the best available scientific information and taking into account ongoing key conservation efforts and their projected benefits, the FWS has determined the bird does not face the risk of extinction now or in the foreseeable future and therefore does not need protection under the ESA.

"This is truly a historic effort — one that represents extraordinary collaboration across the American West," Jewell said. "It demonstrates that the Endangered Species Act is an effective and flexible tool and a critical catalyst for conservation — ensuring that future generations can enjoy the diversity of wildlife that we do today. The epic conservation effort will benefit westerners and hundreds of species that call this iconic landscape home, while giving states, businesses and communities the certainty they need to plan for sustainable economic development."

"Today's decision reflects the joint efforts by countless ranchers and partners who have worked so hard to conserve wildlife habitat and preserve the Western way of life," said U.S. Agriculture Secretary Tom Vilsack. "Together, we have shown that voluntary efforts joining the resources of private landowners, federal and state agencies, and partner organizations can help drive landscape-level conservation that is good for sage-grouse, ranching operations and rural communities. Through the comprehensive initiatives on both public and private lands, the partnership has made and will continue to make monumental strides in supporting the people and wildlife that depend on the sagebrush landscape."

Read the full DOI press release and visit doi.gov/sagegrouse for more details.

## Tres Palacios Creek watershed partnership meeting set for Oct. 8

Those interested in becoming involved in a partnership to improve and protect the Tres Palacios Creek watershed along the Texas Gulf Coast are urged to attend an Oct. 8 meeting in Palacios. The Texas Water Resources Institute (TWRI) will host the free meeting at 1 p.m. at the First United Methodist Church, 209 Lucas Ave.

Dr. Kevin Wagner, TWRI associate director, said the main purpose of the meeting is to organize a watershed partnership with interested stakeholders. The partnership will develop a strategy for reducing bacteria levels in the creek.

"The tidal portion of Tres Palacios Creek, which primarily occupies part of Matagorda and Wharton counties, is currently designated by the state as impaired because of elevated bacteria concentrations periodically found there," he said.

"Together with the local stakeholders, we will finalize the partnership structure and formation of a wastewater work group and an agriculture and wildlife work group, which will work on identifying feasible management measures to include in the strategy," he said.

Wagner will give an overview of the water quality data for the watershed as well as water quality policy and watershed-based planning information for the benefit of anyone who did not attend the initial meeting of the group.

“Even if someone wasn’t able to attend the July 30 meeting, we encourage local residents to attend this meeting and become part of the planning process through the partnership,” said Dr. Allen Berthold, TWRI research scientist. “Their input is essential for developing and implementing a successful strategy to address the bacteria issues.”

For more information, contact Berthold at 979.845.2028 or taberthold@ag.tamu.edu.

## Center for Infrastructure Renewal announced by TEES and TTI

The state of Texas has appropriated billions of dollars over the next biennium to address the state’s transportation infrastructure, including $5 million for the construction of the Center for Infrastructure Renewal (CIR), a joint venture between the Texas A&M Engineering Experiment Station (TEES) and the Texas A&M Transportation Institute (TTI).

The facility will house researchers developing advanced and sustainable materials and structural systems to reduce cost and extend infrastructure life, safety, resiliency and durability. It will address problems ranging from aging roadways and bridges, to the U.S. power grid and the nation’s oil, gas, water and wastewater pipeline systems.

“The potential for this facility is immense, in terms of both innovative research opportunities and cost savings for the state of Texas,” said John Sharp, chancellor of The Texas A&M University System.

The $5 million from the state is the first year of debt service to allow $65 million to be used for the construction of CIR. Another $35 million is being raised from the private sector for equipment and program enhancements, according to TEES.

“Our legislators are to be commended for their support of the Center for Infrastructure Renewal. The research and training to be conducted in this facility will address infrastructure challenges, resulting in unprecedented savings to the State of Texas,” said Dr. M. Katherine Banks, vice chancellor and dean of engineering at Texas A&M University and TEES director. “We expect CIR research to address issues such as developing new methods to repair and replace infrastructure at a lower cost, in less time and with new materials that will have a longer lifespan.”

The research, testing and training facility will be located in Research Park, on the Texas A&M campus. Researchers in the facility will also look to develop partnerships with industry to help address Texas’ infrastructure needs. The 200,000-square-foot testing facility will be one of the largest in the world, connecting researchers and experts from the field so that they can work together to find solutions to challenging infrastructure needs.

Read the full TEES news release for more information.

## Agricultural law symposium will be Oct. 30 at TAMU Law School

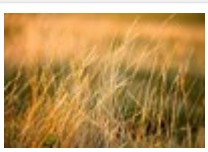
The Texas A&M University Law Review is hosting a symposium, Farm to Table: Agricultural Law in the Era of Sustainability, Oct. 30 in Fort Worth at the Texas A&M School of Law. The event will be held from 8:30 a.m. to 4:30 p.m. at the Amon G. Carter Lecture Hall, 1515 Commerce St.

Practitioners, scholars and agricultural experts will give presentations on the most significant legal issues affecting the sustainability of agriculture and food systems, according to organizers. Dr. Mark Hussey, Texas A&M vice chancellor and dean of agricultural and life sciences, and James Chen, professor at the Michigan State University College of Law, will be the keynote speakers.

The symposium will cover farm and ranchland sustainability, future of crop and food sustainability, and sustainable animal agriculture.

Registration includes breakfast and lunch and is available online. Early registration, through Oct. 16, is $60, and registration after Oct. 16 is $75.

## New environmental markets projects receive NRCS grants



Environmental markets are the buying and selling of ecosystem services such as clean air and water, and wildlife habitat. The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) is a federal leader in supporting the development of environmental markets, largely through its Conservation Innovation Grants (CIG) program, according to NRCS.

On Sept. 15 NRCS announced its 2015 CIG awards, with 23 of the 45 awarded to environmental markets projects. These projects are in three categories — water quality trading, greenhouse gas markets, and conservation finance and impact investments. The third category is new to CIG and focuses on projects that develop innovative approaches and partnerships to attract private capital to private lands conservation.

Among CIG recipients are water quality trading programs in Ohio's Great Miami River watershed and the Ohio River Basin water quality trading program, a recipient of the U.S. Water Prize this year.

Read the full USDA blog post for more information, or view all 23 environmental markets projects in the complete list of 45 CIG projects.

## Applied biodiversity scholars program applications due Oct. 9

The Applied Biodiversity Science Conservation Scholars Program, an undergraduate internship program open to all undergraduates at Texas A&M University and Texas A&M – Galveston, is accepting applications through Oct. 9.

The program is seeking applications for internship positions from undergraduate students interested in local issues related to the Gulf of Mexico ecosystems and energy development and on broader questions of the relationships between energy development, energy policy and natural resources.

Funded through the National Fish and Wildlife Foundation, the program is led by Dr. Thomas Lacher, professor in Texas A&M's Department of Wildlife and Fisheries Sciences.

Each intern will receive a small research stipend through a faculty advisor to conduct baseline research and associated travel related to a proposed summer internship opportunity, available over the fall and spring semesters. The student will then spend one month working in a state or federal agency, nongovernmental organization, private entity or research facility, fully funded by the program, to gain hands-on experience on issues related to natural resource management and energy development. The majority of interns will be focused on the Gulf of Mexico ecosystem. A limited number of internships will be designed to work on broader questions that are applicable globally as well as to the Gulf of Mexico.

The program anticipates funding 15 student awards in 2015–2016. For detailed application instructions, see the program's website. Submissions are due by Oct. 9 to absconservationscholars@gmail.com.

**Natural Resources Training Courses**

- Texas Watershed Planning Short Course, Oct. 19-22, Bandera, TX
- Introduction to ArcGIS 10, Oct. 21-22, College Station, TX