IRNR drought study continues putting popular plants to the test

Blue plumbago, Hinckley's yellow columbine and purple fountain grass are just a few of the species among the 1,600 plants being monitored by researchers in a drought survivability study in San Antonio. More than 30 volunteers planted the landscape plants in a drought simulator in February as part of the water-minded horticultural experiment.

Texas A&M Institute of Renewable Natural Resources (IRNR) and Texas A&M AgriLife Research personnel are conducting the study, which is funded by the San Antonio Water System (SAWS), San Antonio River Authority (SARA), and cities of Austin and Georgetown.

The study is assessing the drought tolerance of 100 popular Central Texas ornamental plant species using a 5,000 square-foot drought simulator bed located on San Antonio's south side. Another 500 plants were planted at a similar Georgetown drought simulator later in February. Both structures mimic drought by quickly moving to cover the beds when rain begins.

The plants at both locations were then irrigated for a four-month establishment period. All of the beds were also equally covered with mulch, which helps conserve moisture, lower soil temperatures and reduce weed growth.

"All of the plants received the same amount of irrigation for four months so that they could grow and develop before being subjected to drought treatments," said Forrest Cobb, IRNR student technician. "Generally, more established plants are more resilient to drought stress."

After that, each simulator's bed was divided into four experimental plots, which have been irrigated at one of four treatments: 0 percent, 20 percent, 40 percent or 60 percent of reference evapotranspiration. The plants were continuously monitored during this time, and the data was gathered to determine the plants' minimum irrigation requirements.

In June, project staff began collecting preliminary data. Final data will be collected in September.

"The study is too early to show any major results; however, we expect some plants to perform well with less or no water, whereas some will progressively wilt," said Amy Truong, extension assistant for IRNR and project lead. "The results will help shape landscaping guidelines in Texas."

Ornamental irrigation can make up as much as 30-60 percent of home water use, so more accurate information on plant water requirements will benefit future water conservation efforts and education, Truong said.

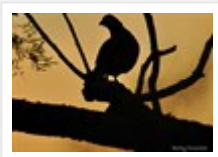
Local volunteers have helped throughout the project with weeding, mulching and maintaining the study beds, Truong said.

"We have a group of committed volunteers from the Bexar County Master Gardeners, landscaping industry and the public that helps collect data on a weekly basis," Truong said. "Their backgrounds vary but our goal is the same: we want to identify plants that are most prepared for drought climates in order to reduce outdoor water use."

Species being tested include 'Moy Grande' hibiscus, knock out rose, mistflower, Sago palm, purple coneflower and Fanick's summer phlox.

San Antonio residents, central Texas gardeners and others interested in the project can like the study's Facebook page for easy access to updates, plant descriptions, volunteer day announcements and more. For more information, contact Truong at 210.277.0292, ext. 102, or Uyen.Truong@ag.tamu.edu.

Statewide Quail Symposium will be Sept. 16-18 in Abilene



Organizers are urging quail enthusiasts to make plans to attend the Statewide Quail Symposium, hosted by the Texas A&M AgriLife Extension Service, Sept. 16-18 in Abilene.

The symposium will begin with a tour of Trail Ranch in Albany at 1 p.m. Sept. 16. The remainder of the symposium will take place at the MCM Elegante Hotel in Abilene.

“The last time we convened a statewide quail symposium was in 1999 in Abilene,” said Dr. Dale Rollins, a symposium planner. Rollins is AgriLife Extension’s statewide coordinator for the Reversing the Quail Decline Initiative and director of the Rolling Plains Quail Research Ranch in Roby.

“Since then we’ve experienced record lows of bobwhites, scaled or blue quail and consequently, the number of quail hunters,” he said. “We hope we turned the corner last year, and we likewise hope to build on that rebound nicely this summer.”

Rollins said the symposium will bring together a wide variety of leading professionals and experts in quail management, research and conservation from around the state.

Presentations during the Sept. 16 Trail Ranch tour will cover quail management, economics, the Texas Quail Index, defining usable space for quail and brush sculpting.

The day-long Sept. 17 session will feature talks on the state of quail hunting in Texas, weather and quail, translocating wild quail for re-establishment and eyeworms, plus debates on pen-reared quail and cow and quail coexistence. The half-day Sept. 18 session will include presentations on the Rolling Plains Quail Research Ranch, Quail-Tech, Caesar Kleberg Wildlife Institute, Borderlands Research Institute and plans for the next biennium.

Individual preregistration is $50 by Sept. 7 and $75 thereafter. Individual student preregistration is $20 by Sept. 7 and $50 thereafter. For the latest information on the agenda, registration, lodging and more, visit statewidequailsymposium.com.

The symposium is part of the Reversing the Quail Decline Initiative, a $2 million legislatively funded AgriLife Extension statewide initiative supported by Upland Game Bird Stamp revenue. Read the AgriLife TODAY news release for more information and follow the initiative on Facebook for regular updates.

IRNR helps study, monitor Chagas disease in Texas

To keep both animals and humans protected from Chagas disease, Texas A&M University System entities have been studying the parasite-host-vector interaction at sites in South Central Texas.

Chagas is the common name for a disease transmitted by insects and animals that can cause severe symptoms, even death, in humans. It is responsible for an estimated 50,000 deaths annually in Latin

American countries, according to the World Health Organization. The Centers for Disease Control and Prevention estimate 8 to 11 million people throughout Latin America have the disease, the majority of whom do not even realize they are infected.

Nineteen cases of Chagas in humans were reported to the Texas Health and Human Services Commission in 2013, but health officials believe the actual number of infections is higher due to misdiagnosis or non-reporting.

“Over the past several years, a number of animals in the South Central Texas area have shown symptoms of Chagas, and the presence of the disease had been confirmed through blood tests,” said Troy Luepke, a research assistant with Texas A&M AgriLife Research based in San Antonio who collected data used in the study.

AgriLife Research, the Texas A&M Institute of Renewable Natural Resources (IRNR), and the Department of Wildlife and Fisheries Sciences in the College of Agriculture and Life Sciences are involved in the study.

Luepke said there is additional concern in the scientific community that these instances will increase because of the possibility of dogs exposing humans to the disease. Dogs, especially those in rural areas, are more likely to come into contact with the triatomine bugs and other mammals that may transmit the disease.

Chagas is caused by infection from the protozoan parasite *Trypanosoma cruzi*, also known as *T. cruzi*. The parasite is vectored by certain triatomine bugs, which go by names like kissing bugs, assassin bugs, cone-nosed bugs and blood-suckers. These bugs take a “blood meal” from mammals and then transmit the parasite by depositing their waste into the wound.

In its acute stage, active symptoms of the disease may include fever, nausea, diarrhea, vomiting, fatigue and body aches. There may also be an enlargement of the liver or spleen or localized swelling in the spot where the initial infection occurred. In the chronic stage, the infection may remain dormant for years or even a lifetime, but sometimes severe cardiac issues, such as heart failure, heart attack or an enlarged heart, or intestinal problems occur.

“Chagas can produce digestive and cardiac complications in mammals, including free-ranging mammals like squirrels, skunks, opossums and raccoons, as well as in dogs and humans,” Luepke said.

Most of the data on Chagas infections collected in South Central Texas was from 2012 to 2014, but it was in the 1970s that Chagas was last studied in this area, he said.

“Many blood-feeding insects of the triatomine group have large populations in South Central Texas due to the habitat being conducive to their proliferation,” he said.

Understanding the life cycle of Chagas from host species such as raccoons, opossums and dogs to the bug vector is important to its control and management, said Dr. Roel Lopez, IRNR director.

“Our approach has been a comprehensive review of many aspects of the disease, particularly with free-ranging wildlife populations,” Lopez said.

Luepke said to estimate insect and mammalian host densities in different seasons and in different types of vegetation in South Central Texas, narrow sections of 1 meter by 100 meters were established on the test sites. Data gathered from these transected areas allowed project participants to also estimate the prevalence of T.cruzi through blood samples taken from known mammalian hosts found in these sections.

“We used infrared motion-activated trail cameras to determine the populations of larger mammals such as deer, raccoons, possums and squirrels, plus used small- to medium-sized traps to capture, mark and release smaller mammals, and bug traps to determine the population of triatomine bugs,” Luepke said. “We randomly placed one camera, one bug trap and 10 animal traps of different sizes in each transect. Samples were taken within each 100-meter line transection or at points placed every 10 meters.”

While the data showed a link between the triatomine bugs and host mammalians, the exact role of free-ranging animals in the infection equation is still largely unknown, Luepke said.

“But we did discover more instances of Chagas in raccoons and opossums than was previously theorized and not as much as expected in the smaller rodents we captured,” he said.

Lopez said the research helped determine that one of the most effective preventive and habitat-management strategies should involve maintenance of open or manicured woodlands.

Read the original AgriLife TODAY news release.

TWDB approves $3.9 billion in SWIFT inaugural financial assistance

The Texas Water Development Board (TWDB) approved approximately $3.9 billion in financial assistance from the State Water Implementation Fund for Texas (SWIFT) on July 23. The inaugural round of SWIFT financing will be distributed to 21 applicants for approximately $1 billion in projects in the first year and approximately $3.9 billion total over the next decade, according to TWDB.

“Being able to finance projects through SWIFT is a major step toward achieving the goal of securing Texas’ long-term water supplies,” said TWDB Chairman Bech Bruun. “The projects selected to receive SWIFT financing will help ensure that Texans have sustainable and reliable water sources for decades to come.”

The applicants are requesting funding for 32 projects identified in the state water plan. The types of projects approved include transmission pipelines, canal linings, capacity expansions, seawater desalination, leak detection systems, water meter replacements and reservoirs.

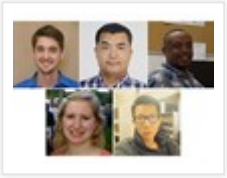
“The board was pleased to see a wide range of projects represented in the SWIFT applications,” said Carlos Rubinstein, TWDB board member. “One of those projects, Lake Ralph Hall, is the first reservoir permitted by the state of Texas since 1985 and an important water supply strategy for North Texas.”

SWIFT was established by the Texas Legislature and voters in 2013 to fund projects in the state water plan. SWIFT was created through the transfer of a one-time, $2 billion appropriation from the state’s Rainy Day Fund. The $2 billion will be leveraged with revenue bonds over the next 50 years to finance approximately $27 billion in water supply projects, according to TWDB

“We took the legislature and voters of Texas very seriously when they put their confidence in us to manage SWIFT,” said Kathleen Jackson, TWDB board member. “We’ve traveled the state, engaged communities and developed a new approach to fast-track the state water plan. We are beyond excited to approve the first round of SWIFT financing and see the large number of impactful projects moving forward to develop water for Texas.”

For more details and to see the full list of projects selected for SWIFT financial assistance, read the complete TWDB news release.

TWRI awards graduate students water research scholarships



The Texas Water Resources Institute (TWRI) recently awarded Mills Scholarships to five Texas A&M University graduate students for the 2015–16 academic year. The students will use the $5,000 scholarships to pursue water-related research.

The W.G. Mills Endowment supports diverse disciplines pursuing research in water-related studies. TWRI uses the Mills Scholars program to assist current and prospective Texas A&M graduate students studying water resources and hydrology issues in Texas.

Students receiving the scholarships are:

- John Blake, Askarali Karimov and Gang Zhao, Zachry Department of Civil Engineering
- Jifar Nata and Kimberly Rhodes, Water Management and Hydrological Science program

The scholars' research topics are green water mapping and management for future water savings; extending water availability modeling on the Rio Grande using the Water Rights Analysis Package; future water availability in Texas cities under urbanization and climate change; planning for the future of the San Antonio region; and quantifying water exchange between the Brazos River and the Brazos River Alluvial Aquifer.

Mills Cox, a former chairman of the Texas Water Development Board, funded the W.G. Mills Endowment, which provides the scholarships. More information on the Mills Scholarship Program and the students' projects is available online or by contacting Danielle Kalisek, TWRI program manager, at dmkalisek@tamu.edu.

Meet a scientist: Allen Berthold

Dr. Allen Berthold may have grown up dryland farming, but that doesn't mean he's not making waves now. As a research scientist at the Texas Water Resources Institute (TWRI), Berthold helps coordinate various research and extension projects involving water planning, assessment and conservation.

"Growing up farming, we always knew water was one of the most important issues, so because of it, I became interested in water related research and education," Berthold said.

Berthold's interest in water conservation inspired him to earn his doctorate in agricultural leadership, education, and communications from Texas A&M University in 2014. His doctoral work for the Arroyo Colorado Watershed Protection Plan focused on evaluating educational needs and barriers to adopting water management practices as well as assessing program effectiveness, he said.

"What I learned through the process as well as listening in several public meetings, is that there was a discrepancy between what agency people thought producers wanted to learn and what they (producers) actually wanted to learn," he said.

Berthold's doctoral work resulted in two new projects focused on delivering the appropriate water education programs to farmers and landowners, he said. "My dissertation is done, but the recommendations are moving forward."

Now, as a research scientist, Berthold's primary responsibilities include securing funding for projects and water-related research. "We work with stakeholders all across the state to develop watershed protection plans, total maximum daily loads and implementation plans, which are essentially strategies for improving water quality," he said.

A current research project Berthold is excited about involves urban water conservation. Berthold and his team have used advanced metering infrastructure (AMI), an integrated water usage metering system, to develop a unique educational program for residents in the North Texas city of Arlington.

Dr. Allen Berthold

AMI enables more detailed water-use information, down to an hourly scale, which is stored at the meter and then transmitted to the city daily. Working closely with the city, Berthold and his team then load that data into a web portal where homeowners can log in and check their water use.

Access to more immediate and detailed water data can inform homeowners of any excess use throughout the day. For example, some residents “have found that something’s wrong with their sprinklers, either with a leak or their timer control system,” Berthold said.

Consistent and unexplained usage throughout the day can indicate a problem with the home water system. “If there’s continuous usage during the day as well as the night, there must be a leak,” he said.

Other features of the web portal include the ability to view water consumption in terms of cost, manage multiple meters and set water usage limits.

Berthold believes individuals’ actions to conserve water play a critical role in the state’s water situation.

“Every homeowner should really pay attention to the amount of water that they’re using, be it indoors or outdoors,” he said. “They can look for ways to use less, change their habits just a little bit, maintain their fixtures, like their toilets or faucets, and really make a difference in the long run.”

Looking to the future, Berthold said he will continue to both work with landowners to develop strategies to improve water quality as well as work to improve urban water conservation.

“It is great when you can help people achieve their goals, whether it be to improve water quality or just reduce the amount of water that is used around their home.”

For more information on Berthold’s work, see his staff page, and for more information on the AMI projects, read this txH$_2$O article and this Conservation Matters article.

WRAP fundamentals course coming to Texas A&M Aug. 4-5

The Texas Water Resources Institute (TWRI) Natural Resources Training Program will host a Water Rights Analysis Package (WRAP) Fundamentals Short Course Aug. 4-5 in College Station. The two-day course will be held at 1500 Research Parkway, in Lab 212.

The course is designed for engineers and scientists employed by water agencies and consulting firms, said Nikki Dictson, a Texas A&M AgriLife Extension Service program specialist for TWRI and coordinator of the training program.

“The training is oriented toward new WRAP users but will also be beneficial for those with past experience who would like to refresh their skills,” she said.

WRAP is a generalized modeling system used for simulating the development, management, allocation and use of the water resources of a river basin. The Texas Commission on Environmental Quality Water Availability Modeling system consists of the modeling system along with input datasets for all of the river basins of Texas.

Dr. Richard Hoffpauir of Hoffpauir Consulting is the course instructor. Dictson said he has many years of experience in applying WRAP in Texas and abroad.

“WRAP is used in regional and statewide planning, preparation and approval of water right permit applications, system operations studies and various other river/reservoir system management activities,” Hoffpauir said.

Through lectures, discussions and computer modeling exercises, Hoffpauir said he will cover WRAP monthly time step simulations and output processing, focusing on fundamentals.

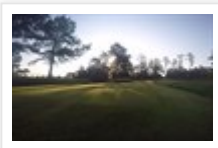
“The objective is for course participants to obtain hands-on experience with the modeling system and proficiency with basic water right analyses,” he said.

The course registration fee is $800, which includes WRAP manuals and meals. The class is limited to 10 people. The registration form is available at bit.ly/wrapshortcourse.

Participants will receive continuing education units for completion of the course. Attendees are responsible for their own hotel reservations and travel. Information regarding local accommodations is available from TWRI’s training program.

The public domain WRAP software and reference, users and supplemental manuals are available at ceprofs.civil.tamu.edu/rwurbs/wrap.htm. For more information, contact Dictson at ndictson@tamu.edu or 979.458.5915 or contact Hoffpauir at richard@rjhoffpauir.com.

Aggie Turf launches new website



Landscape professionals and homeowners alike can now find a variety of science-based turfgrass resources on the newly developed Aggie Turf website.

Aggieturf.tamu.edu is part of the turfgrass program within the Department of Soil and Crop Sciences at Texas A&M University. Turfgrasses often serve as the backbone of residential and commercial landscapes, athletic fields, recreational areas and golf courses, and according to the site, turfgrass is essential to the Texas green industry, which includes:

- 1.6 million acres of lawns and landscapes
- $9.3 billion and 111,000 jobs in the green industry
- $6.2 billion and 80,000 jobs in golf
- $263 million and 2,100 jobs in turfgrass production

The site includes turfgrass selection and management considerations, pest control (weeds, insects and diseases), links to further Texas A&M AgriLife Extension Service materials and other resources. For more information and updates, follow Aggie Turf on Twitter.

Around the institutes

As the Texas Water Resources Institute (TWRI) and the Texas A&M Institute for Renewable Natural Resources (IRNR) continue to work together and share support staff and resources, both institutes continue to see growth in projects and personnel.

Brian Jonescu, formerly a graduate student researcher with TWRI, has joined the institute full-time as a research assistant. Victor Gutierrez is the new TWRI Extension assistant working on the Arroyo Colorado Watershed Partnership projects. Based in Weslaco, he replaces Ashley Gregory, who is now an Extension horticulture agent.

Dr. Brian Pierce, formerly an IRNR research associate, was recently named an associate director for the institute. Several new staff members have also joined IRNR. Patrick Bixler is a new research scientist for conservation policy, examining the human dimensions of natural resource conservation. Michael Brennan is a new program director for IRNR's program for wildlife mitigation and conservation. Jeremiah Leibowitz joined IRNR's San Antonio office in March as the program director for the Program of Private Lands Stewardship.

New IRNR and TWRI projects:

- Evaluation of survey methods and biases in estimating white-tailed deer densities at Camp Bullis, Texas
  Funding Agency: Department of Defense – Corps of Engineers
- GLCI - Land Stewardship and Soil Health Workshops
  Funding Agency: Texas Coalition, Grazing Lands Conservation Initiative
- Remote Sensing of Volatile Organic Compounds Using Small Unmanned Aerial Systems
  Funding Agency: Houston Advanced Research Center
  Partner: Texas Engineering Experiment Station
- Little River, San Gabriel River and Big Elm Creek Watershed Characterization
  Funding Agency: Texas Commission on Environmental Quality
  Partners: Texas A&M University Department of Agricultural Leadership, Education and Communications
- Support of REPI Program in Sustaining Military Readiness
  Funding Agency: Department of Defense – Corps of Engineers
- Endangered Species Research Projects for the Louisiana Pine Snake
  Funding Source: Texas Comptroller of Public Accounts
- Distribution-wide surveys for Holbrookia lacerate
  Funding Agency: University of Texas
- Evaluation of Sprague's Pipit's Conservation Status on their Wintering Grounds in Texas
  Funding Source: Texas Comptroller of Public Accounts
- Annual Application under Section 104 of the Water Resources Research Act of 1984
  Funding Source: U.S. Geological Survey
  Partners: Texas A&M AgriLife Research, University of Texas, Texas A&M University Water Management and Hydrological Science Department

Water professionals invited to water quality monitoring plan course Aug. 6-7

The Texas Water Resources Institute (TWRI) is hosting a Fundamentals of Developing a Water Quality Monitoring Plan workshop Aug. 6-7 at the U.S. Department of Agriculture Agricultural Research Service (USDA–ARS), 808 East Blackland Road, in Temple.

The workshop is set for 9 a.m.-5 p.m. Aug. 6 and 8:30 a.m.-3:30 p.m. Aug. 7 at the Grassland, Soil and Water Research Laboratory's meeting room. Registration is $150 and includes course materials, catered lunches and a certificate of completion.

Nikki Dictson, Texas A&M AgriLife Extension Service program specialist for TWRI, said the workshop will provide watershed coordinators and water professionals with tools to develop and implement a water quality monitoring program.

She said the course will cover water quality monitoring for watershed characterization and for evaluation of water quality improvements and management practice effectiveness from implementation activities.

"Through presentations and case studies, participants will gain an understanding of what monitoring is needed for watershed protection planning, including inventorying existing resources, selecting a monitoring design, stormwater sampling and considerations to build a successful monitoring plan," Dictson said. "Participants will get some hands-on experience with creating a monitoring plan and through monitoring demonstrations in the field."

Dr. Larry Hauck, lead scientist, and Anne McFarland, both from Tarleton State University's Texas Institute of Applied Environmental Research; Dr. Kevin Wagner, TWRI associate director; and Dr. Daren Harmel, research leader of the USDA–ARS Grassland, Soil, and Water Research Laboratory are a few of many experts who will be instructors at the course, Dictson said.

One TWRI continuing education unit will be provided upon course completion.Registration and more information are available online or by contacting Dictson at 979.458.5915 or n-dictson@tamu.edu.

The training course is supported by funding from the Texas State Soil and Water Conservation Board through a U.S. Environmental Protection agency Clean Water Act nonpoint source grant.

Women's Natural Resource Management Conference set for Oct. 5-6 in Fredericksburg

A conference devoted to helping women manage natural resources in the Edwards Plateau will be held Oct. 5-6 in Fredericksburg at the Inn on Barons Creek. The Women's Natural Resource Management Conference is funded by the Ruth and Eskel Bennett Endowment, said Dr. Larry Redmon, co-chair and Texas A&M AgriLife Extension Service Bennett Trust specialist.

"More and more women are becoming landowners through inheritance and other means, and we want to help these women be a success in the management of their natural resources," he said.

Cost of the two-day conference is $75 and includes all meals, break refreshments and tour transportation costs. The women's conference is an extension of the Bennett Trust Land Stewardship Conference, Redmon said.

Dr. Rick Machen, AgriLife Extension specialist, said the conference will include "the best and wisest, accomplished stewards, visionaries and legacy-leavers as educators for this conference. Those with a passion for natural resource stewardship and a love for the Texas Hill Country will want to be there."

Speakers will include wildlife biologists, animal scientists, range scientists, estate attorneys and financial planners.

Planned discussions include a presentation on the history of Hill Country plants, animals and early people found in the region, and how the region has changed; estate planning; using wildlife for the 1-d-1 Open Space Lands tax valuation; and development of a wildlife management plan.

Visit bennetttrust.tamu.edu/events to register and view the event's agenda. For more information, contact Redmon at l-redmon@tamu.edu or Machen at r-machen@tamu.edu. Read the complete AgriLife Today news release for more details.

Stormwater BMPs at Texas A&M AgriLife Dallas center show statewide promise

The results of stormwater practice demonstrations at the Texas A&M AgriLife Research and Extension Center in Dallas demonstrate the potential benefits for using such practices in urban areas statewide, an expert said.

"Because much of the land in urban areas is paved or covered by other impervious structures, typical filtration and purification done by soil and plants has been sidestepped," said Dr. Fouad Jaber, Texas A&M AgriLife Extension Service specialist in integrated water resources management. "So bacteria, sediments, oil, grease and chemicals from yards, roads and parking lots and elsewhere end up running off directly into watershed areas."

Jaber said to help address this problem, he has been testing low impact development practices, including permeable pavements, green roofs and a bioretention-rain garden area.

Low impact development, or LID, is a stormwater management approach using innovative planning and engineering together with conservation and nature to protect water quality, he said. In testing these practices at the center, Jaber established methods to monitor and measure their effects on hydrology, nitrogen, phosphate, total suspended solids, bacteria and other pollutants.

Evaluation was done in a field setting with soil comparable to that of the Blackland region and much of the southern United States.

"Up until now, there hasn't been much data to show how adopting LID practices on a watershed scale in urban areas may help reduce flooding and improve overall water quality," Jaber said. "Now, after two years of testing, we have initial data demonstrating the value of these practices."

Jaber said data gathered from early 2013 to the end of March 2015 and applicable to the Upper Trinity-White Rock Creek Watershed would also translate to other urban U.S. watersheds.

"What we found was that if there was a rain event of 1.5 inches or less, which is typical in this area, by using these practices, 50 percent of the water stays in the soil and either infiltrates or evaporates, 40 percent leaves through a drainage pipe after being filtrated by the soil and only 10 percent overflows untreated."

"The large number of storms that occurred in Texas in March through May resulted in flooding that caused loss of life and property damage across the state," Jaber said. "And while individual storm events were not very large, the frequency of these events was very high. This saturated the soils and caused flash flooding from even small subsequent rain events."

He said despite the fact that LID practices at the Dallas center were designed to handle small rain events, during this three-month period they were able to prevent a large portion of the water runoff from leaving the property.

“From Feb. 28 to May 30, the center received approximately 23 inches of rain,” he said. “Approximately 84 percent of the total runoff that entered the LID practices was held in the soil and eventually percolated or evaporated. Only 16 percent of the total runoff left the property.”

To arrange a tour of the LID sites at the Dallas center or for more information, contact Jaber at 972.952.9672 or f-jaber@tamu.edu.

The LID practices being tested at the center were funded by a Clean Water Act urban nonpoint source pollution prevention program through the Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency. Texas A&M AgriLife Research also provided funds, as well as the locations for constructing the best management practices sites.

Read the complete AgriLife TODAY news release for more details on the research results.

New AgriLife Research study gives insights on fire management for mesquite control

Fire must be effectively managed to get the best control of mesquite seedlings, according to new research results from Dr. Jim Ansley, Texas A&M AgriLife Research rangeland ecologist.

His study results, published in Rangeland Ecology and Management, indicate both season and intensity are important factors in the mitigation of mesquite seedlings by fire.

“We know adult mesquite trees are fire resistant because they resprout following a fire,” Ansley said. “We have determined that range managers might have a greater success of mesquite control with fire if their efforts are aimed at the seedlings.”

In the study, mesquite seeds were planted in mid-grass and tall-grass plots in the spring and then burned in the winter at 10 or 22 months seedling age or in late summer when they were 17 months old.

He said summer fires were especially effective in the mid-grass fuels and yielded a higher death rate when the seedlings were 17 months old than did earlier winter fires when seedlings were 10 months old.

However, Ansley said, this same advantage of summer over winter fires is not seen in higher fuel load areas, such as those with tall-grass types. In that case, both seasons had a high death rate of trees after fire.

The air temperature was, of course, higher during summer fires, and this greatly increased fireline intensity on the mid-grass plots, but only slightly increased intensity on the tall-grass plots, he said.

Grass fuel amounts were similar for both winter and summer fires in the mid-grass plots, about 1,700 pounds per acre, and slightly higher in summer than winter in the tall-grass plots, 6,900 versus 5,950 pounds per acre.

“One of the most important conclusions was that there was a very close positive relationship between fireline intensity and seedling mortality, especially in winter fires,” Ansley said. “So, conditions that yield high fire intensity such as higher fuel loads or summer burning will have the greatest effect on seedling mortality.”

Read the complete AgriLife TODAY news release for more information from the study, or read the full results of Ansley’s study.

New publications
Pathogen Risk to Human Health in Potable Water Related to Nonpoint Sources of Contamination: Colorado River Alluvium Case Study, TWRI TR-478.
Conservation status of the federally endangered Golden-cheeked Warbler, IRNR, 2015.

Upcoming training courses

- WRAP Fundamentals Short Course, Aug. 4-5, College Station, TX
- Advanced Metering Infrastructure Training, Aug. 6, Robstown, TX
- Fundamentals of Developing a Water Quality Monitoring Plan, Aug. 6-7, Temple, TX
- Texas Watershed Coordinator Roundtable, Aug. 12, San Marcos, TX
- Introduction to ArcGIS 10, Aug. 18-19, College Station, TX