

Conservation Matters – June 2013

Employment opportunity: IRNR postdoctoral research associate

The [Texas A&M Institute of Renewable Natural Resources](#) (IRNR), the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville and the East Wildlife Foundation (EWF) are soliciting applications for a 3-year position with a focus on designing, implementing and evaluating a EWF-wide monitoring program. The postdoctoral research associate will coordinate the long-term project focused on monitoring activities intended to detect short- and long-term changes in terrestrial vertebrates and vegetation on the EWF properties.

More information is available at irnr.tamu.edu/postdoctoral-research-associate. Applications will be accepted until **Aug. 16** or until the position is filled.

Last chance to register for Texas Grazing Land Conference



The [Texas Grazing Lands Conservation Initiative](#) (GLCI) will host the [Texas Grazing Land Conference](#), **July 15–17**, at the Radisson Hotel Fort Worth at Fossil Creek. Cattle ranchers, land managers and others interested in learning profitable grazing management, managing wildlife with livestock, risk management and marketing strategies need to register by **June 28** at regonline.com/txgrazland2013.

The conference's keynote speakers are **Dr. Temple Grandin**, noted animal behavior expert, author, speaker and professor at Colorado State University; and **Kit Pharo**, speaker, author and rancher and owner of Pharo Cattle Company, according to organizers.

The GLCI was founded in 1991 to provide technical assistance on grazing lands on a voluntary basis and to increase the awareness of the importance of grazing land resources. For further information, contact **Jeff Goodwin**, Texas GLCI coordinator at 254.742.9951 or jeff.goodwin@tx.usda.gov.

Finch offers reliable advice for homeowners, leads WCTC in its inaugural year

By Kathy Wythe



Have a question about water conservation at home? Or maybe a drought-tolerant landscapes or gardening question? Chances are, longtime water expert **Dr. Calvin Finch** probably has the answer.

Finch, director of the [Water Conservation and Technology Center](#), has been answering questions about horticulture, water conservation and the environment for more than 20 years. His informative gardening and water conservation columns run in South Texas newspapers, including the *San Antonio Express-News* and Primetime newspapers, his question and answer columns are published in South Texas and Hill Country weeklies, and radio and television programs air in the San Antonio market.

In the summer, Finch's columns typically cover gardening and landscape solutions, ranging from tomato production to drought-tolerant groundcovers. Other columns offer water-saving tips such as instructions on installing drip irrigation in your landscapes. Read his columns by visiting wctc.tamu.edu/columns/.

In addition to providing educational information to South Texas communities, as the Water Conservation and Technology Center's director Finch has focused the center's efforts in its inaugural year on promoting water conservation measures and conducting research and outreach on the interrelationships between energy and water. The center, administered by the [Texas Water Resources Institute](#) in partnership with the [Texas Center for Applied Technology](#), was established to accelerate the development and adoption of new and innovative technologies in the areas of urban water conservation, water reuse, groundwater desalination and water use in energy production.

The center was recently awarded the \$1.9 million per year [Edwards Aquifer Regional Municipal Water Conservation Program](#), funded for five years as part of the [Edwards Aquifer Habitat Conservation Plan](#). The goal of the habitat conservation plan is to stabilize water supplies available from the Edwards Aquifer and to protect the endangered species at Comal and San Marcos springs. Finch said the goal of the conservation program is to save an additional 20,000 acre-feet of water beyond the region's normal conservation activities.

He said the center was selected because of the expertise of its staff and its long-time involvement in the [Edwards Aquifer Recovery Implementation Program](#) process. Other reasons, Finch said, included the access to [Texas A&M AgriLife Extension Service](#) agents in each county of the region, the close relationship between Texas A&M and the U.S. Department of Defense, and the competitive costs and reasonable provisions of the center's proposed plan.

The center also completed an initial project assessing [San Antonio Water Systems'](#) (SAWS) use of energy in water production, which offered SAWS significant cost reduction options.

Finch is frequently interviewed about water conservation issues in Texas, most recently by West Texas Public Radio and the National Association of College and University Business Officers *Business Officer* magazine. *The Mesquite*, the student newspaper for Texas A&M University at San Antonio, recently awarded Finch the Community Source Award for being "a source in the community that frequently helps student reporters."

Prescribed Burning School set for Aug. 8–10 near Sonora



The [Academy for Ranch Management](#) will host a Prescribed Burning School **Aug. 8–10** at the [Texas A&M AgriLife Research-Sonora Station](#) located on State Highway 55 between Sonora and Rocksprings.

The workshop will provide information on the history of fire, weather, planning a burn, fuels and fuel moisture, and equipment, according to **Ray Hinnant**, a Texas A&M AgriLife Research senior research associate in College Station and a workshop presenter.

The fee for this workshop is \$395, payable upon registration, plus a \$45 facilities-use fee that will be payable to the AgriLife Research station upon arrival, Hinnant said.

The academy's primary goal is training ranchers for effective rangeland management, and the focus now is on prescribed burning for rangelands, he said. Prescribed burning is a tool that can be used to manage rangeland vegetation for livestock and wildlife, and reduce the risk of catastrophic wildfires by removing hazardous fuel loads.

"These courses offer hands-on experience for ranch owners, as well as new landowners and absentee landowners who may be several generations removed from the ranch," Hinnant said.

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

Hinnant and **Dr. Charles "Butch" Taylor**, superintendent of the research station at Sonora, are prescribed-burning board instructors. Other speakers during the course include **Dr. Mort Kothmann**, Department of Ecosystems Science and Management professor, and **Nick Garza**, an AgriLife Research associate at Sonora.

For more information, call Hinnant at 979.820.1778, and to register, call **Jeanne Andreski** at 979.862.2128. Visit the [Academy for Ranch Management](#) to download the registration form. Read the [AgriLife TODAY story](#) for more details.

UT hosting Water Technology and Policy Conference in October



The University of Texas at Austin's Center for Lifelong Engineering Education is presenting the [Water Technology and Policy Conference](#), held at the university's [IC² Institute](#), **Oct 22–23**.

The conference will also be simultaneously available online, and topics will include hydrology, infrastructure, water treatment technologies, the water-energy nexus, policy and economics. **Dr. Michael Webber**, **Ashlynn Stillwell** and **Raj Bhattarai** will be course instructors. **Dr. Kevin Wagner**, [Texas Water Resources Institute](#) associate director, will be presenting at the conference.

For more information, see the [conference flyer](#) and [registration site](#).

IRNR social media training July 18 in Austin

The [Texas A&M Institute of Renewable Natural Resources](#) (IRNR) will conduct a [Social Media 101—Raising Stakeholder Awareness in an Information Age](#) workshop **July 18** in Austin.

The workshop will be held from 9 a.m. to 3 p.m. at the Texas Parks and Wildlife Department Airport Commerce Park, 1340 Airport Commerce Park.

The program is designed for governmental and organizational representatives, and others involved in outreach, information dissemination and advocacy on natural resources, said **Amy Hays**, IRNR program specialist and workshop trainer. Hays said the workshop will focus on teaching participants how to use social media to enhance outreach and engage stakeholders.

"It includes information on the present state of social media, how to use social media as outreach instead of just for personal use, new and old social media tools, and creative ways to reach new audiences," she said.

Registration is available through [Texas A&M AgriLife Extension Conference Services](#). The cost is \$50 through **July 11** and \$60 after **July 11** and on site. The registration fee includes lunch. Participants are asked to bring their own device for social media use.

This workshop is sponsored by the [Texas Parks and Wildlife Department](#). It is the last of four social media trainings for natural resources stakeholders throughout the state over the last four months. Previous workshops were given in San Antonio, Houston and Stephenville.

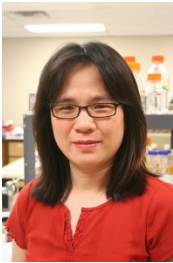
"The Institute for Renewable Natural Resources works with many state and local partners on a one-on-one basis to help increase their voice in natural resources management and the ways in which stakeholders can become engaged in problem-solving," Hays said. "Every year, we look for ways to help share information, help create an engaged, active and knowledgeable citizenry, and elevate the role of science in daily lives. These workshops provide information of use to our local partners and their constituents."

For more information about the event, contact Hays at 254.865.2061 or ahays@ag.tamu.edu. For information on registration or payment, contact AgriLife Extension Conference Services at 979.845.2604 or agriliferegister.tamu.edu. Information on additional workshops and trainings can be found at naturalresourcestraining.tamu.edu.

Texas A&M's Chu studies water-improving, estrogen-eating bacteria

A Texas A&M University engineering researcher believes the right bacteria can be a natural weapon for fighting an emerging water contaminant: estrogen.

Increasingly sensitive methods of screening water for polluting substances allow environmental scientists to monitor traces of previously undetected contaminants in otherwise clean water: trace amounts of pharmaceutical and personal care products ranging from antibiotics to anesthetics and, especially, estrogens.



The presence of any of these drugs concerns public health officials, but [Dr. Kung-Hui \(Bella\) Chu](#), an associate professor in the Environmental and Water Resources Engineering Division of the [Zachry Department of Civil Engineering](#), is particularly interested in estrogen in water.

"We are talking about trace amounts of these materials," Chu said. "We're talking about concentrations of, usually, nanograms per liter. It's very low."

But even at these low concentrations, Chu said, the presence of estrogens in water is something to be concerned about.

So far, the most direct evidence of the impact of estrogens in water has been found in male fish swimming downstream from estrogen-containing water sources. Some have been found to have both male and female sexual characteristics, such as partially developed ova, or eggs, in their testes.

This sex-related damage to fish may not be significant in itself, but researchers suggest that it's a warning of potential dangers to humans. Estrogens in drinking water could affect male fertility by interfering with sperm production. Links between environmental estrogenic compounds and several kinds of cancer, especially breast and testicular cancer, also have been suggested.

Estrogen and estrogen-like compounds find their way into water from many sources. Naturally occurring estrogen compounds come from livestock urine and feces, and from human excretions and contraceptives and hormone replacement medications. Other estrogen-like compounds can be found in everything from insecticides to plastics, and they all find their way into the water supply. About 80 percent of 139 U.S. rivers are contaminated with these trace compounds, according to Chu.

Existing water treatment processes remove as much as 94 percent of estrogen from untreated water, Chu said, but what remains is still potent enough to cause damage to fish, and, researchers fear, humans. Although harmful estrogens often remain in water after treatment, this performance is not surprising, Chu said, because conventional water treatment processes weren't designed to deal with estrogens.

Chu said she has long been interested in biological approaches to water-quality problems. In wastewater treatment, this means using bacteria to clean up the wastewater. Her focus is on searching for wastewater bacteria that are capable of breaking down estrogens into harmless end products.

If she finds them, the estrogen degradation ability of these bacteria could be capitalized in engineered bioreactors to remove estrogens.

Chu and her colleagues have found 14 different species of bacteria that can break down estrogens, and they've published details of their findings in scientific journals. Their idea is to define the optimal growth conditions to promote the growth of estrogen-degrading bacteria in biological wastewater treatment processes as a means to break down estrogens quickly and completely and relatively inexpensively.

For more detailed information on this research, read the full [TAMU Times article](#); and for further background, see this [Winter 2010 txH₂O article](#) on Dr. Chu's research.

Veteran AgriLife Extension educator shares social media insights, quail research



Social media is everywhere these days, and a Texas A&M AgriLife Extension Service wildlife expert is doing his best to harness the fast-evolving technology to spread the word on quail management and other key wildlife-related topics.

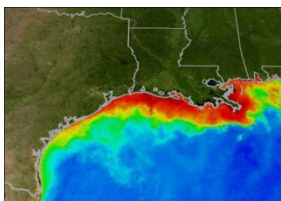
"Quail, specifically bobwhite quail, are my favorite species of study and my personal passion," said **Dr. Dale Rollins**, AgriLife Extension wildlife specialist at San Angelo. "They are indeed social critters, so I've found it fitting to use social media to educate 'students of quail' from all walks of life."

Rollins currently uses YouTube "webisodes," frequent Facebook posts, a monthly e-newsletter and an up-to-date website to reach an audience that may live hundreds of miles from him. Most of his social media efforts deal with quail conservation and are done in conjunction with the [Rolling Plains Quail Research Ranch](#) at Roby. His "[e-Quail News](#)" reaches about 2,650 readers monthly and the ranch's Facebook page currently reaches about 4,000 people weekly.

"There are many advantages, but also some disadvantages to these various social media types," Rollins said. "From my perspective, they offer a time- and resource-efficient method for reaching various clientele without having to burn up the roads to do it. I've found social media to be a good way to create program awareness and to pique a stakeholder's interest in learning more."

Read the full [AgriLife Today article](#) for more details.

NOAA, partners predict possible record-setting dead zone for Gulf of Mexico



Scientists are expecting a very large "dead zone" in the Gulf of Mexico this year, based on several NOAA-supported forecast models.

NOAA-supported modelers at the [University of Michigan](#), [Louisiana State University](#), and the [Louisiana Universities Marine Consortium](#) are forecasting that this year's Gulf of Mexico hypoxic "dead" zone will be between 7,286 and 8,561 square miles, which could place it among the ten largest recorded. That zone would range from an area the size of Connecticut, Rhode Island and the District of Columbia combined on the low end to the size of New Jersey on the upper end. The high estimate would exceed the largest ever-reported in 2002 of 8,481 square miles, researchers said.

Hypoxic or very low oxygen and anoxic or no oxygen zones are caused by excessive nutrient pollution, often from human activities such as agriculture, which results in insufficient oxygen to support most marine life in near-bottom waters. Aspects of weather, including wind speed, wind direction, precipitation and temperature, also impact the size of dead zones.

The Gulf estimate is based on the assumption of no significant tropical storms in the two weeks preceding or during the official measurement survey cruise scheduled from **July 25–Aug. 3**. If a storm does occur, the size estimate could drop to a low of 5,344 square miles, slightly smaller than the size of Connecticut.

This year's prediction for the Gulf reflects flood conditions in the Midwest that caused large amounts of nutrients to be transported from the Mississippi watershed to the Gulf. [Last year's dead zone in the Gulf of Mexico](#) was the fourth smallest on record due to drought conditions. The forecast is based on nutrient run-off and river stream data from the [U.S. Geological Survey](#) (USGS).

"Monitoring the health and vitality of our nation's oceans, waterways and watersheds is critical as we work to preserve and protect coastal ecosystems," said **Dr. Kathryn D. Sullivan**, acting under secretary of commerce for oceans and atmosphere and acting NOAA administrator. "These ecological forecasts are good examples of the critical environmental intelligence products and tools that help shape a healthier coast, one that is so inextricably linked to the vitality of our communities and our livelihoods."

The [dead zone in the Gulf of Mexico](#) affects nationally important commercial and recreational fisheries, and threatens the region's economy, according to officials. For more information, see [NOAA's news release](#).

Global Petroleum Research Institute offering August Water/Wastewater course

The [Global Petroleum Research Institute](#) (GPRI) is hosting the Water and Wastewater: Issues, Challenges, Solutions and New Technologies short course **Aug. 6–7** at Texas A&M University.

The course will include experts from industry and academia presenting information about separation technologies in petroleum, chemical, food, water and wastewater processing, according to organizers. Lectures will be in the Richardson Building Room 309. Equipment demonstrations will be held at the Texas A&M University Riverside campus.

Cost for the course is \$995 or the webinar cost is \$100. Online registration is [available](#). Contact **Carl Vavra** at 979.862.1617 or carl.vavra@pe.tamu.edu for further information on the course. GPRI is a part of the Texas A&M Engineering Experiment Station and The Texas A&M University System.

"Value and vulnerabilities" of Texas Coast highlighted in GLO report

The [Texas General Land Office](#) (GLO) has issued a report, [The Texas Coast: Shoring Up Our Future](#), based on issues of concern identified by more than 40 experts that make up the Texas GLO's Coastal Management Program's Technical Advisory Committee. According to GLO, the overview illustrates the Texas Coast's economic and environmental significance and describes the primary challenges and specific issues facing the coast.



To read the report and find more information, visit shoringuptexas.org.

Read all about it

The Texas Water Resources Institute (TWRI) and the Texas A&M Institute of Renewable Natural Resources (IRNR) use the content curation website ScoopIt! to share water- and natural resources-related news stories, blog posts and YouTube videos.

At scoop.it/u/texas-water-resources-institute, you will find stories about funding Texas water, innovative water conservation technologies and management strategies and TWRI. At scoop.it/u/Texas-Water you can follow topics on Texas water sustainability and drought management; best management practices evaluation; Texas watershed assessment, planning and restoration; and water resources training and education. IRNR curates stories focused on water and natural resources science and management issues. Read those stories at scoop.it/t/txirnr.

Both institutes tweet about water and natural resources events, research and news at twitter.com/TxWRI and twitter.com/TxIRNR.

Poultry Litter Field Day set for July 10 in Riesel



Management of poultry litter will be the focus of a field day to be held **July 10** at Riesel High School, 600 E. Frederick St. in Riesel.

The field day is hosted by the Texas A&M AgriLife Extension Service, [Texas Water Resources Institute](https://www.tamur.edu/twri) (TWRI), the U.S. Department of Agriculture's Agricultural Research Service and the Texas A&M University Poultry Science Department. There is no cost to attend, and lunch will be provided by the Texas Poultry Federation. Registration begins at 8 a.m. with presentations to start at 8:30 a.m.

Poultry production has expanded significantly in Central in Texas in recent years, said **Matt Brown**, TWRI program assistant.

"Poultry litter—the combination of bedding material and manure—is a great source of plant nutrients," Brown said. "However, if improperly managed, litter removed from these poultry facilities and applied to the land can represent a threat to water quality through bacterial and nutrient runoff from these fields."

Certain best management practices can reduce the environmental impacts of poultry litter, he said.

Brown said program attendees will learn about in-house windrow composting, a management strategy used by commercial poultry producers to reduce pathogenic microorganisms in litter.

Presentations also will address the economic and environmental impacts of poultry litter application, bacteria found in poultry litter, the effect of composting on litter nutrient levels and odor, spreader calibration and litter application, and various additional litter management practices.

"Attendees need to come prepared to travel, because following the presentations participants will see a demonstration of the windrow process at the Agricultural Research Service Grassland, Soil and Water Research Laboratory located a few miles from the high school," he said.

The group will return to the high school for lunch. An agenda and more information can be found at windrowlitter.tamu.edu.

Holders of Texas Department of Agriculture private pesticide applicator licenses will be offered two continuing education units in the general category. RSVP by **July 8** to Shane McLellan, AgriLife Extension agent for McLennan County, at 254.757.5180 or s-mclellan@tamu.edu.

The *In-House Windrow Composting of Poultry Litter* project is managed by TWRI and is funded through a Clean Water Act grant provided by the Texas State Soil and Water Conservation Board and U.S. Environmental Protection Agency.

Texas Tech study finds low-grade cotton brings top value in oil spill cleanup



When it comes to cleaning up possible future massive crude oil spills, one of the best and most eco-friendly solutions for the job may be low-grade cotton from West Texas, say Texas Tech University researchers.

Dr. Seshadri Ramkumar, lead author of the study and manager of the [Nonwovens and Advanced Materials Laboratory](#) at Texas Tech's [The Institute of Environmental and Human Health \(TIEHH\)](#), said he and his colleagues

found that low-micronaire cotton—one of the lowest-quality types of cotton—is most effective at picking up oil. A pound of the low-micronaire cotton can pick up more than 30 pounds of crude oil, and its natural waxiness helps to repel water.

The new study includes some of the first scientific data on unprocessed raw cotton's use in crude oil spills and was published in the ACS journal [Industrial & Engineering Chemistry Research](#).

"In this region, about 10 percent of the cotton grown in West Texas is low micronaire," Ramkumar said. "It doesn't take a dye well, so it gets discounted. However, because low-micronaire cotton is less mature, it shrinks, and you are able to pack more fiber into a given area. The strength here is that the low-micronaire cotton absorbs the most crude oil. The oil is not only stuck to surface, the oil gets absorbed into the fiber."

Dr. Ron Kendall, director emeritus at TIEHH and special assistant to the president, said the Deepwater Horizon disaster emphasized the need for better ways of cleaning up oil spills.

"One of the things we realized from Deepwater Horizon is we didn't have the best tools for cleanup, and the technology wasn't right for the booms," Kendall said. "This discovery that low-micronaire cotton, which is the least valuable cotton, can absorb as much crude oil as it does is a breakthrough discovery. It gives us an excellent tool for cleanup of shorelines, animals and ecologically sensitive areas as well as a new technology for booms that can stop oil sheen moving into wetlands. And it's biodegradable. This is just another added bonus use for low-end West Texas cotton. Now, farmers have a new use for low-end cotton in a very significant way for oil spill cleanup."

To keep reading about this research, see the full [Texas Tech Today story](#).

New Publications / Papers

New Extension publications

[Water Sample Information Form](#), **T. Provin**, Texas A&M AgriLife Extension Service, E165, 2013.

[Texas Farm Pond Management Calendar](#), **B. Higginbotham, T. Sink**, Texas A&M AgriLife Extension Service, EWF-003, 2013.

[Homeowner Soil Sample Information Form](#), **T. Provin**, Texas A&M AgriLife Extension Service, E-444, 2013.

[Aquatic Herbicide Use](#), T. Sink, M.P. Masser, Texas A&M AgriLife Extension Service, **EWF-004**, 2013.

New TWRI and IRNR publications

[Status of the freshwater mussel \(Unionidae\) communities of the mainstem of the Leon River, Texas](#), C.R. Randklev, M.S. Johnson, E.T. Tsakiris, J. Groce, N. Wilkins, Aquatic Conservation: Marine and Freshwater Ecosystems. DOI: 10.1002/aqc.2340, 2013.

Natural Resources Training Courses

Poultry Litter Field Day	July 10
Introduction to ArcGIS 10	July 17–18
Social Media 101-Raising Stakeholder Awareness in an Information Age	July 18
Introduction to ArcGIS 10	Oct. 8–9