

THE CEDAR POST

JULY 2015

News and Information for the Texas Hill Country

VOLUME 5 ISSUE 1

FIRE

By Wesley Evans

Fire...the word can evoke feelings of warmth and comfort, but it can also cause fear and anxiety when thinking about fire on one's ranch/property. The unusually severe wildfire seasons in recent years and the resulting media coverage may lead some to believe that fire on the landscape is a harmful and destructive force, but that is not necessarily the case. Fire is a natural ecological process and was a factor in shaping the landscape of Texas prior to European settlement through lightning-caused wildfires or fire intentionally set by Native Americans. Also, Aldo Leopold, the father of wildlife management, recognized the beneficial role fire could play when he added it in his list of important tools for wildlife habitat management: "axe, plow, cow, fire, and gun". So how can fire be safely used by those looking to enhance their rangeland? The answer is prescribed burning. A prescribed burn can be defined as the thoughtful and skillful application of fire to a specific area under selected conditions to accomplish specific land management objectives. Some of the more common objectives are: increased food availability for wildlife, brush control, and wildfire mitigation.



Prescribed fire can be used to bring plant communities back to an earlier stage of plant succession, increasing both the quantity and quality of forage. Early successional stages have greater plant diversity and can be very beneficial to a variety of wildlife. Brush and other woody species can be top-killed by fire, causing them to resprout and bring browse back down where it can be utilized by white-tailed deer and other wildlife species. Grasses and forbs growing after a burn can have a higher nutritional content and be more palatable to both wildlife and livestock. Prescribed burning can be used at different times of the year to target specific plant species, either to promote desired species or to remove undesirables.

Prescribed burning is also an effective, low-cost alternative for brush control. Ashe juniper is not a fire-tolerant species and can be controlled with the use of prescribed fire. Burning a relatively large area with many small junipers can be cheaper and less time consuming than removing the trees by hand or with other mechanical means. Larger trees or thick "cedar brakes" can be managed by using fire in combination with other management practices. Likewise, prescribed fire can control prickly pear when used in conjunction with herbicide or grazing.

Another objective of prescribed fire is to reduce the risk of potential damage caused by wildfires. Areas with a high probability of wildfire occurrence can be burned prior to wildfire season to remove or reduce the vegetation that could potentially burn during a wildfire. Wildfires burning in these previously burned areas will be of less severity and more easily controlled. Sensitive areas (endangered species habitat, riparian areas, buildings, etc.) can also have the risk of damage from wildfires reduced with the application of fire under prescribed, and therefore less volatile conditions.

It should be noted that prescribed fire is not a "one-time use" tool. Burning every 3-10 years (depending on objectives) will be needed to maintain the benefits gained by burning. It's also not a "magic bullet" to be used to fix any and all wildlife management issues; rather, it is just one tool in

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Click on web links found throughout the newsletter to go directly to the associated site

FIRE...cont.

the manager's toolbox that is best used in conjunction with other tools in order to achieve the maximum benefit. While fire is a great practice for wildlife and range management and can be a low-cost alternative to other tools, it also involves a much higher risk and potentially severe negative impacts if not used in a thoughtful and skillful manner.

So where can a landowner interested in prescribed fire go for more information and assistance? Texas Parks and Wildlife Department (TPWD) can assist landowners interested in using fire as a tool to manage their habitat. The TPWD Wildlife Division provides technical guidance through all aspects of prescribed burning: planning, burn operations, and post-burn monitoring. The Division has four Regional Fire Coordinators statewide who are tasked with facilitating the implementation of prescribed fire on both state-owned and private lands. For more information on how TPWD can assist with prescribed burning, please contact your local County Biologist or Regional Fire Coordinator.



Wesley Evans is the Fire Coordinator for the Hill Country and Cross Timbers regions. Wesley joined TPWD in 2014, after working in the wildland fire service for 15 years for the US Forest Service and US Fish and Wildlife Service. Wesley has a B.S. in Fisheries and Wildlife from the University of Missouri-Columbia and a M.S. from Eastern Kentucky University in Safety, Security, and Emergency Management

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Don't Forget About the Soil: Healthy Wildlife Populations Require Healthy Soil

By Elizabeth Bates

What image comes to mind when you think of the phrase "wildlife management"? Is it an image of a white-tailed deer, Rio-Grande turkey or maybe a painted bunting? How many of us think about nematodes, bacteria, or protozoa? Probably not many. Most people are unaware of the life forms inhabiting the soil and yet there is a large amount of biological diversity right under our feet. In fact, without these (often microscopic) organisms we would not be able to manage for the more charismatic wildlife that we all know and love. These small, often underappreciated organisms form the basis of the food chain and affect the type and amount of vegetation found in an area. This vegetation provides wildlife with food and cover and helps to determine the species of wildlife inhabiting a piece of property.

The next time you walk outside, take a second to examine the ground under your feet and think about the very active community of microorganisms that live there. For instance, there are the saprophytic bacteria and fungi which are busy decomposing dead organic matter and releasing nutrients into the soil. Nitrogen fixing bacteria are hard at work converting nitrogen into a form usable by plants, and mycorrhizal fungi take up residence near plant roots helping the plants take up minerals and nutrients in exchange for carbon. Then there are the protozoa which eat bacteria and release excess nitrogen that can be used by other organisms. Protozoa also help to regulate bacteria populations by stimulating bacterial growth thereby increasing the rate of decomposition. Nematodes (non-segmented worms) feed on the bacteria, fungi, and protozoa; and in doing so release nutrients into the soil making them accessible to plants and accelerate the decomposition process. Nematodes also help to distribute bacteria and fungi throughout the soil. To put it simply, this community of organisms is cycling nutri-



Poor soil and range health

SOIL...cont.

ents through the ecosystem by breaking down organic matter, releasing nutrients, and transforming those nutrients into forms that other organisms can use.

In addition to nutrient cycling, soil organisms play a critical role in other ecosystem processes. They help to break down and degrade pollutants which prevents them from entering our water supply. These organisms also help to increase soil porosity, water infiltration and the water holding capacity of the soil. The soils ability to hold and release water helps to filter water and mitigate flooding. Even though these organisms are microscopic in size, their role in maintaining healthy and functioning ecosystems is substantial.

Therefore, it should come as no surprise that soil management is an essential component of wildlife management. Soil needs to be capable of producing the food and cover required by wildlife. Consequently, when making wildlife management decisions, careful consideration should be given to maintaining soil health. Bare exposed ground should be minimized. Too much bare ground can result in moisture loss, erosion, and loss of soil microbes. Soil disturbance should be kept to a minimum since too much disturbance can lead to loss of soil organic matter. This can be done by using reduced or no till agricultural practices or by using a deferred rotational grazing system. Providing pastures with rest periods from livestock grazing allows for the regrowth of plants. If pastures are overgrazed and plants are not given sufficient time to recover then root biomass becomes reduced. Keeping living roots in the ground year round is important as this ensures that soil microbes have access to food sources throughout the year. This is where plant diversity becomes important. Having both warm and cool season grasses and forbs as part of the plant community will help ensure there are living roots in the ground year-round that results in a diversity of soil microbes. Plant diversity also increases the resiliency of the land to changing growing conditions. If wildlife management is your goal, then maintaining healthy soils should be a part of your wildlife management plan. This will help ensure plant quality and diversity as well as habitat conditions that foster healthy wildlife populations.

Elizabeth Bates is a TPWD wildlife biologist for Kendall and Comal Counties

Velvet-Antlered Stag Bucks

By Steve Nelle

A condition known as hypogonadism in male deer occurs naturally in the Central Basin, but is very rare outside of this region. Hypogonadism describes diminished functional activity of the gonads (testes) that may result in diminished testosterone levels and reduced sperm production and other secondary hormone related abnormalities. This condition can occur in many animal species, humans and other species of deer.

Within the Central Basin, about 90% of these stag bucks come from the “granite gravel” soil type. In normal years, the incidence of stag bucks in the region is low. During years of increased hypogonadism, incidence in granite gravel areas is often 50 to 80%. In the 2013 season, 44% of bucks killed on one Wildlife Management Association were stags. In previous years, it has been 3 – 21%.

A large series of research projects was carried out by TPWD and others from 1958-1966 to study hypogonadism. Here are some of the general findings (generally true with some exceptions):

- Hypogonadism is irreversible; the bucks do not recover to normal.
- The severity of the condition can vary causing various degrees of impairment and abnormality.
- Bucks have diminutive testicles causing a complete or partial castrating effect.
- Due to low levels of testosterone, bucks do not generally participate in breeding.
- Bucks often have feminine characteristics and behavior, are socially inferior and low on the pecking order.
- Antler velvet is not completely rubbed off and may be completely retained for several years.
- Antlers are often not shed; they may continue to grow year after year, although often misshapen.
- The bone of the stag horn antler is abnormal - more porous, softer, and more prone to breakage.

STAG...cont.

- Even with a high number of these sterile bucks in the herd, fawn production is not affected (no effect in females).
- Since it is not a genetic trait, it cannot be reduced in future generations by culling.

The cause of this condition is unknown, but researchers concluded that it seems related to post-drought conditions. Researchers believe it must be caused by consumption of some plant containing a gonadotoxin that proliferates in granite gravel soils following drought. Such a plant was never identified. On a related note, veterinarians say it is common to have higher numbers of livestock abnormalities in the year after a drought breaks. Veterinarians believe that consumption of certain plants associated with the breaking of drought causes increased animal health problems.

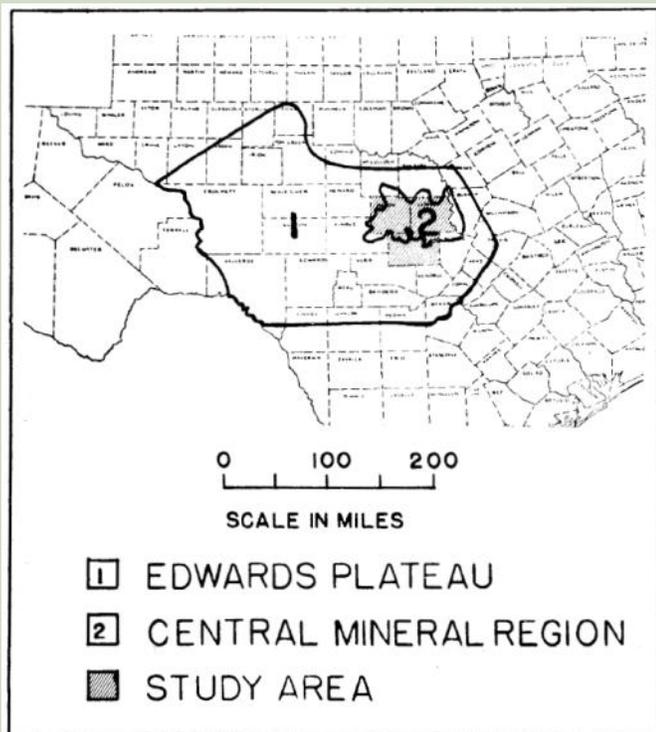
Sitka black-tailed deer on Kodiak Island in Alaska also exhibit a high rate of hypogonadism as well as abnormal antler growth and antler shedding. Researchers hypothesize that it may be the result of long-term consumption of plants high in estrogen. It is theorized that pregnant females consuming these phytoestrogens pass these substances to male fetuses via placenta causing hypogonadism before birth.

Two plants, which can be abnormally high in natural plant estrogens, have been mentioned as possible causes, but there is no evidence to support this. Many plant species can be high in estrogen.

Spikemoss is a low, mat-forming plant related to ferns that grows in granite outcrops. It would be the first plant to “green up” following prolonged drought and may be eaten in abnormally high amounts at this time.

Peavine is an annual weed that is common in wet springs, especially following drought when there is a lot of bare ground. In the early 1960’s, a TPWD technician reported that the abundance of peavine following a drought was the only common denominator he could think of that may cause hypogonadism. Veterinarian Dr. Dan McBride stated that abnormally high levels of selenium in deer diets can cause pen-raised bucks to not drop their antlers. Peavine is known to contain high levels of selenium.

It is possible that there may be some synergistic effects of plant toxins, compounds, or estrogens combined with high levels of some trace minerals in these soils. The cause remains a mystery.



Hunter harvested stag buck

Steve Nelle is a retired wildlife biologist with USDA -Natural Resource Conservation Service.

News Release

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July 1, 2015

Chronic Wasting Disease Detected in Medina County Captive Deer

AUSTIN – A two-year-old white-tailed deer in a Medina County deer breeding facility has been confirmed positive for Chronic Wasting Disease (CWD). This is the first case of CWD detected in captive white-tailed deer in Texas. CWD was first detected in Texas in 2012 in free-ranging mule deer in the Hueco Mountains in far West Texas.

The Medina County tissue samples submitted by the breeder facility in early June as part of routine deer mortality surveillance revealed the presence of CWD during testing at the Texas A&M Veterinary Medical Diagnostic Laboratory (TVMDL) in College Station. The National Veterinary Services Laboratory in Ames, Iowa, confirmed the findings on Tuesday, June 30.

An epidemiological investigation to determine the extent of the disease, assess risks to Texas' free ranging deer and protect the captive deer and elk breeding industry is being led by the Texas Animal Health Commission (TAHC), in coordination with the Texas Parks and Wildlife Department (TPWD) and U.S. Department of Agriculture's Animal and Plant Health Inspection Service Veterinary Services (USDA/APHIS/VS).

Officials have taken immediate action to secure all cervids at the Medina County breeder facility with plans to conduct additional investigation for CWD. In addition, those breeder facilities that have received deer from the Medina County facility or shipped deer to that facility during the last two years are under movement restrictions and cannot move or release cervids at this time. TPWD is disallowing liberation of captive deer from all breeder facilities into the wild at this time pending further review. Additional measures to further minimize risk of CWD spreading into Texas' free-ranging white-tailed deer herd, and to protect the captive deer breeding industry, will be considered.

"This is a terribly unfortunate development that we are committed to addressing as proactively, comprehensively, and expeditiously as possible. The health of our state's wild and captive deer herds, as well as affiliated hunting, wildlife, and rural based economies, are vitally important to Texas hunters, communities, and landowners. As such, our primary objectives are to determine the source of the disease and to identify other deer breeding facilities and release sites that may have received deer from affected facilities," said Carter Smith, TPWD Executive Director. "Working collaboratively with experts in the field we have developed protocols to address CWD, and our implementation efforts are already well under way."

The TPWD and the TAHC CWD Management Plan will guide the State's response to this incident. The plan was developed by the State's CWD Task Force, which is comprised of deer and elk breeders, wildlife biologists, veterinarians and other animal-health experts from TPWD, TAHC, TVMDL, Department of State Health Services, Texas A&M College of Veterinary Medicine, and USDA. Since 2002, the state has conducted surveillance throughout Texas for the disease. More than 34,000 samples collected from hunter-harvested and road kill deer have been tested for CWD.

Although animal health and wildlife officials cannot say how long or to what extent the disease has been present in the Medina County deer breeding facility, the breeder has had an active CWD surveillance program since 2006 with no positives detected until now. "We are working with experts at the local, state and federal level, to determine the extent of this disease, and respond appropriately to limit further transmission," said Dr. Andy Schwartz, TAHC Epidemiologist and Assistant Executive Director. "Strong public awareness and the continued support of the cervid industry is paramount to the success of controlling CWD in Texas."

The disease was first recognized in 1967 in captive mule deer in Colorado. CWD has also been documented in captive and/or free-ranging deer in 23 states and 2 Canadian provinces. CWD among cervids is a progressive, fatal disease that commonly results in altered behavior as a result of microscopic changes made to the brain of affected animals. An animal may carry the disease for years without outward indication, but in the latter stages, signs may include listlessness, lowering of the head, weight loss, repetitive walking in set patterns, and a lack of responsiveness. To date there is no evidence that CWD poses a risk to humans or non-cervids. However, as a precaution, the U.S. Centers for Disease Control and the World Health Organization recommend not to consume meat from infected animals.

Information on CWD can be found at www.tpwd.texas.gov/CWD or at the Chronic Wasting Disease Alliance website, www.cwd-info.org. More information about the TAHC CWD program may be found at www.tahc.state.tx.us/animal_health/cwd/cwd.html.

FROM THE PASTURE

Coral Snake (*Micrurus fulvius tener*)

by Evan McCoy

This venomous snake is in the Elapidae family which includes cobras and mambas. Like other species in this family, the coral snake has hollow, fixed fangs rather than the hinged fangs of the vipers such as rattlesnakes. They are a relatively small, slender snake that grow to be no more than about 3 feet long. They display brilliantly colored bands of red, yellow and black down the entire length of the body. Some non-venomous snakes, such as the milksnake, mimic the color patterns, but only the coral snake will have the red and yellow bands touching. The old saying “red and yellow, kill a fellow; red on black, venom lack” is a handy way to differentiate the two. These snakes prey upon other snakes and small reptiles. They are generally not aggressive and will flee when approached.



visit www.tpwd.texas.gov for more information on Texas snakes

Agarita (*Berberis trifoliolata*)

by Evan McCoy

Agarita (several spelling variations) is an evergreen, medium sized shrub that is very common in the Edwards Plateau. It has 3 holly-like leaflets that are very sharp when they mature. It is one of the early bloomers in the spring with small, yellow flowers with a strong fragrance. It produces numerous red berries that are used by a variety of wildlife. They are also edible to humans who use them to make jellies and wine or simply eat them right off the stem. The leaves are considered to have low to moderate preference by white-tailed deer that will likely make more use of this plant when the leaves are young and tender. Agarita also provides excellent escape cover for quail and other small animals due to its spiny exterior that can help to exclude predators.



Evan McCoy is a TPWD biologist stationed at the Kerr WMA

District Burn Trailer

By Rufus Stephens and Wesley Evans



With TPWD's renewed emphasis on assisting private landowners with prescribed burning, District staff have repurposed an old equipment trailer as a burn trailer. The trailer is outfitted with ramps so a UTV and ATV equipped with sprayers, fuels and tools can be transported to assist landowners with prescribed burning activities. District 4 staff Dale Schmidt and Johnny Arredondo designed and used their considerable welding skills to make the modifications. This will allow staff to provide more fire equipment on larger, more complex burns, or assist with multiple burns on the same day.

Landowners interested in assistance with planning and conducting a prescribed burn on their property should contact their local biologist or the Regional Fire Coordinator, Wesley Evans, at (512) 265-4158 or email at Wesley.Evans@tpwd.texas.gov.

Rufus Stephens is TPWD District Leader stationed in Kerrville, TX.

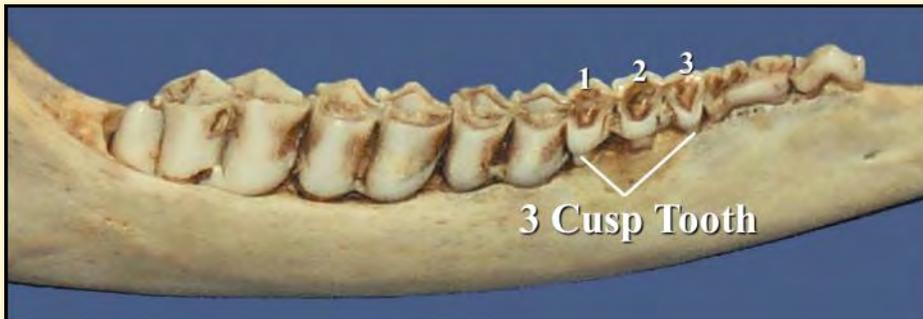
IN A NUTSHELL

Deer Age

By Evan McCoy

The toothwear and replacement method for aging deer is often criticized for being inaccurate. However the method is actually highly accurate at the younger age classes and drops in accuracy in older deer. One reason the younger age classes (fawns and 1.5 year olds) are more accurately estimated is due to the more predictable tooth replacement portion of the technique. When a fawn is born, the first three teeth are “baby teeth”. The 3rd baby tooth will always have 3 cusps (sections). Once a deer turns 2 years of age the baby teeth are replaced with permanent teeth. The new permanent 3rd tooth will now

have 2 cusps. The first thing you should look at on a jawbone is the 3rd tooth. If you count 3 cusps on that tooth then it is either a fawn or a 1.5 year old. Conversely, if the 3rd tooth has only 2 cusps, then you know it is 2.5 or older and then must rely on wear patterns to make your estimate.



Water Guzzlers

By Ryan Reitz

2015 has been a great year for rainfall. Collecting that rainfall for wildlife use is an advantageous tool many have implemented. Impervious catchment aprons, or “roofs”, can be placed in remote locations and are not limited by requirements such as electricity or pumping groundwater. Unlike providing water for livestock, small volumes of water can meet the needs of numerous species and they also serve as excellent wildlife viewing locations. If water is determined to be a limited resource on the landscape, storing adequate amounts of water between rainfall events is a must. Water guzzler design centers on storing enough water until the next rain. Our area will become dry once again, but a properly designed guzzler can provide a virtually permanent water source for wildlife. This year and the past weeks are a great reminder of the range of rainfall events that can fall in a given year.



- For every 1 square foot of apron, expect to harvest 0.66 gallons of water per 1 inch of rainfall
- An optimal storage capacity in the Hill Country is 3,000 gallons
- Design the water guzzler to endure at least 120 days without rainfall
- Small water troughs (< 15 gallon capacity) can minimize evaporation and serve game and non-game species
- Large water sources (4-8 feet wide) are better for bats
- Placing water troughs at or near ground level and providing ramps will improve access and prevent small animals from becoming trapped



Ryan Reitz is a TPWD wildlife biologist stationed at the Kerr WMA.

FIELD NOTES

News and Information from our Wildlife Management Areas

Horned Lizards on the Move

by Devin Erxleben

Texas horned lizards (*Phrynosoma cornutum*) are on the move once again at the McGillivray and Leona McKie Muse Wildlife Management Area in northeastern Brown County. Last summer, wildlife division staff began testing the feasibility and success of reintroducing Texas horned lizards into areas where they once existed. The horned lizard, which happens to be the state reptile of Texas, has been in decline throughout much of its range, and those declines have primarily been attributed to habitat loss, introduction of red imported fire ants (*Solenopsis invicta*), environmental contaminants, and other factors that merit further study.

Neighboring landowners say the Muse WMA held abundant numbers of horned lizards 20-30 years ago; however, none have been detected since TPWD gained ownership of the property in 2006. TPWD biologists spent approximately 5 years studying scientific research literature, visiting with other scientists who had worked with horned lizards, and touring many different habitat types across the state to learn as much as possible about the iconic reptile. Staff then focused their efforts on surveying the Muse WMA and conducting habitat improvement projects to restore the land back to suitable habitat for horned lizards.

During June of 2014, 15 adult horned lizards were collected from private properties west of San Angelo and were taken directly to the Fort Worth Zoo for evaluation and health screenings. After the lizards were determined healthy and free of diseases or parasites, they were taken to the Muse WMA and placed into a 10'x10' predator-proof enclosure to allow for acclimation to their new environment. After a 10-day acclimation period, the enclosure was opened to allow for the lizards to disperse. Beginning June 12, 2014, the lizards were tracked daily using radio-telemetry methods to evaluate dispersal distance, home range size, habitat use, mortality, and reproduction. Approximately 700 individual locations were collected, and the lizards dispersed over approximately 165 acres of the WMA. The survival rate for the translocated lizards was 40% and the majority of the mortalities occurred during the initial dispersal in the days immediately following the release. Most of the individual lizard locations were near low growing brush in fields with sandy-loam soils and in areas with high densities of red-harvester ant colonies. Weekly body weights were collected for each lizard to monitor body condition, and individual weights increased all season long, indicating the lizards found plenty to eat. Two of the translocated females also initiated nests in July, and one of those nests successfully hatched 20 eggs on September 7, 2014. Daily tracking ceased on October 28, 2014, at which time all of the surviving lizards had burrowed 2-4 cm into the ground to hibernate for the winter months. WMA staff checked the hibernation sites weekly during the winter to monitor for predation and signs of activity.

As of May 2015, staff at the Muse WMA have begun daily tracking efforts of the lizards once again, and they are preparing to collect an additional 20 lizards for release on the area during June. Release enclosures have also been constructed at Mason Mountain Wildlife Management Area in Mason County, and 15 lizards will be released and tracked at that site beginning in June. The information learned from this study will help determine whether or not horned lizard populations could be restored into areas that possess good habitat. Due to the project's growth and success during 2014, TPWD has also welcomed a graduate student from Tarleton State University to the project. To learn more about the project, contact staff at the Muse or Mason Mountain WMAs or view the video found at: www.youtube.com/watch?v=-zeVBsJ1HRU



An adult Texas horned lizard wearing a backpack style VHF radio telemetry transmitter at the Muse WMA

© TPWD



Seasonal wildlife technician Rowdy White assists with Texas horned lizard tracking at Muse WMA during summer 2014

© TPWD

ON THE HORIZON

Soil For Water

Outreach/demonstration program focusing on the role soil health plays in catching and holding rainwater

When: Friday, July 17, 2015, 9am – 12pm
Where: Fredericksburg Inn and Suites, Fredericksburg, TX
Cost: Free
Information at : www.hillcountryalliance.org
Please RSVP: peggysechrist@gmail.com

Rainwater Potential Workshop

Learn Rainwater Harvesting 101 and participate in a Catchment System Build

When: Saturday, August 22nd, 2015, 8am – 12pm
Where: Bandera County River Authority and Groundwater District, 440 FM 3240, Bandera
Cost: \$80
For more information: contact www.bandera.agrilife.org

Kerr Wildlife Management Area First Friday Tours

Habitat Management and Wildlife Research

When: August 7, September 4, and October 2
Time: 1-5 pm
Cost: Free
Where: Kerr Wildlife Management Area
For more information contact Kerr WMA at 830-238-4483

Basic Prescribed Burning Workshop

The Academy for Ranch Management

Learn history and benefits of prescribed burning, weather, fuels, fuel moisture, equipment needed, and developing a plan

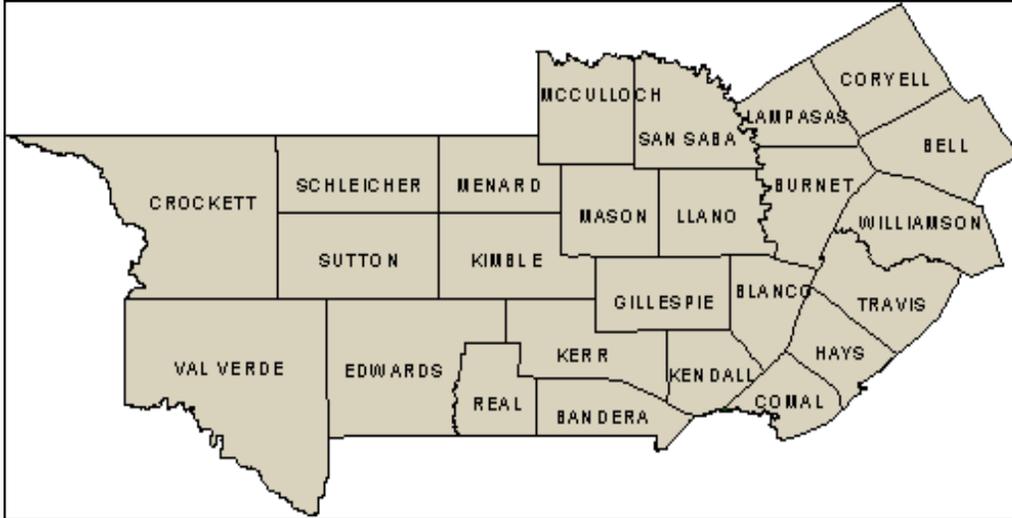
When: August 6-8, 2015
Where: Texas A&M AgriLife Research Sonora Station
Cost: \$395 for workshop and \$45 facility use fee
Registration: <http://agrilife.org/arm/>
Contact: Ray Hinnant at 979-820-1778 or Jeanne Andreski at 979-862-2128

Get Wild

Learning about different features, adaptations, and behaviors of our native wildlife
Enjoyable for the whole family

When: 2-3pm, Every Friday through August 28, 2015
Where: Garner State Park Visitor Center
Cost: Free
Contact: Cara Bierschwale (830) 232-6132, x236 • cara.bierschwale@tpwd.texas.gov

HILL COUNTRY WILDLIFE DISTRICT



Note: There have been some recent changes in contact information so please check the Hill Country Wildlife District map for updated contact information for your local biologist.

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"To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations."

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