



United States Department of Agriculture
Natural Resources Conservation Service

Helping People Help The Land

November/December 2012 Issue No. 18



The Reverchon Naturalist

Recognizing the work of French botanist Julien Reverchon, who began collecting throughout the North-Central Texas area in 1876, and all the botanists/naturalists who have followed ...

Frost Aster

Story by Dr. Jake Landers, Ph.D.

Retired Range Specialist

Texas A&M AgriLife Extension Service

San Angelo, Texas

Early fall brings out the Asters. One of the most common on our rangeland and roadsides is frost aster. It starts blooming in late September, sometimes a mass of white flowers hiding its green leaves, and continues past a few light frosts. Each bloom is smaller than a dime when it's expanded. By touching or overlapping its neighbor, the flowers give the whole plant a white appearance.

The scientific name of frost aster is *Aster ericoides*. It is a member of the Sunflower family of plants. The second part of its name refers to the resemblance of the plant to Heath, a shrubby plant of the eastern mountains. Another common name is Heath aster, but I seldom hear it used around here.

As a member of the grassland community, frost aster extends today from central Texas to Iowa, maybe even a bit farther in both directions. Over this distance, it's a wonder how such a plant knows when to start blooming in time to make seeds before winter sets in. I'll spare you the details, but basically the plant has pigments which react to the decreasing length of daylight as fall approaches, and which act as a biological clock.

Flower buds develop when triggered by the time-keeper pigments.

Oddly enough it may be the same set of chemical signals that causes horses, dogs, and other animals to grow a thicker coat for winter, and Monarch butterflies and birds to migrate south. It should not be a surprise that as we discover more information on DNA, we will find out how closely all life is related, that green plants and animals, including humans, have some of the same genes that run our biological clocks as well as other vital functions.



Frost Aster
(*Aster ericoides*)

Frost aster (Aster ericoides) is commonly found on our rangelands and along roadsides in Texas. It is also called Heath aster and a member of the Sunflower family. (Photo courtesy of Dr. Jake Landers)

(Continued on page 4)



By Ricky Linex
NRCS Wildlife Biologist
Weatherford, Texas

Three Years and 18 Issues Bringing Plants to You

The November-December issue of the Reverchon Naturalist marks the 18th issue and the end of the third year of producing this newsletter. Many individuals have contributed articles, given feedback, made suggestions for future articles, and even praised this informative newsletter. I have to admit that the finished product is far nicer than I first envisioned a little over three years ago. Going from my initial thoughts of a simple word document with inserted photos here and there to what we have now is quite a leap in technology and finished product. I have to give the credit for the look and design of this humble newsletter to Randy Henry, Zone 5 Public Affairs Specialist, who is the guy behind the scenes who edits, arranges and produces the final product. Under Randy's skilled hands it is a pleasure to see each issue come to life.

As we try new ideas for the newsletter, we are constantly seeking people who are passionate about native plants, and who like to write about them. We are fortunate in that many very talented writers have contributed their passion, interest and writing skills to educate and inform others. Two of those writers were recently honored by the Native Plant Society of Texas at their annual symposium in Kerrville. Shirley Lusk was presented with the Charles Leonard Weddle Award for her work volunteering, identifying, collecting, and teaching others about native plants in the North Texas region. Shirley is the great, great niece of Julien Reverchon, the namesake of our newsletter. Also, Jim Stanley was presented with the Carroll Abbott Award for his book *Hill Country Landowners Guide*. The award is named for the founder of the society, and is given for writings in the popular vein. Jim is a well respected and self-taught naturalist, and we enjoy receiving his writings.

Others being recognized included:

- Ken King and Alfred Richardson received the Donovan Stewart Correll Award for their book *Plants of Deep South Texas*. The award is made for scientific writing.
- Bill Carr was presented with the Nancy Benedict Award for his work in collecting, identifying and preserving thousands of native plants and plant records.
- Mark Bronstad received the Lynn Lowrey Memorial Award for his work in commercial propagation of *Cyrilla* and genetic diversity.

UPCOMING CALENDAR OF EVENTS

- December 11, **Pesticide Applicator CEU Recertification** will discuss feral hogs, cropland production, and progression of the wildlife industry in Texas. Location will be Decatur, TX., 8:30 AM – 3:00 PM, registration at 8:00 AM. 2010 West US 380, Decatur Civic Center. RSVP by December 7th to Texas A&M AgriLife Extension Karen Brown, khbrown@ag.tamu.edu 940-627-3341. Registration fee-\$35.00 includes lunch and 5 CEU's.
- January 25, **2013 Golden-cheeked Warbler Symposium**, Lady Bird Johnson Wildflower Center, Austin, TX. For registration and more information contact pramirez@biodiversityworks.org

Hedgers, Browsers, Nibblers and More, Oh My!

Story by Melissa Sturdivant

*NRCS Soil Conservationist and ISA Certified Arborist
Goldthwaite, Texas*

Are You A Grazer or A Browser—Perhaps, You’re a Nibbler? When you “forage” at a buffet, you have your preferences—favorites that beckon your attention. Sometimes, these preferences may not be the most nutritious, but they may be the most palatable or tasty, or vice versa. Livestock and wildlife are no exception – they have preferences in what they will forage upon, too. More importantly, what’s available or in season will probably be the most important factor in determining what’s for dinner – for you, me and white-tailed deer!

Unlike grazing animals such as cattle and sheep that feed primarily on grasses and lower growing vegetation, browsing is a type of herbivory in which animals feed on the leaves, twigs, buds, and shoots, along with fruit such as acorns (or mast) and fleshy fruits of woody vegetation from shrubs and trees. To some degree, all animals browse. The most abundant of our native browsers is the white-tailed deer (*Odocoileus virginianus*). Research shows that only 5–10 percent of a deer’s diet comes from grasses and this is usually seasonally based when tender new growth emerges. A white-tailed deer’s diet primarily comes from forbs and browse plants while their daily forage intake is about 3.5 percent of their body weight.

If You Have a Browse Line, Then You May Have a Problem! Over time, animal preferences and unrestricted selectivity can reduce highly desired browse while allowing less desirable plants to increase and become a nuisance. This is the main difference between having good browse as cover for wildlife and having a brush problem! Just as ranchers monitor grasses for proper grazing use and distribution, they should also monitor the woody vegetation to ensure that it is sustainable, that forage use is balanced and to make sure that white-tailed deer populations are in check.

Is there Enough Food for Dinner? In addition to animal preference, browsing is also controlled by the plant’s availability and seasonal growth. How do you know if there’s a problem? How are browse plants evaluated? The time-tested conservation practice of “take half, leave half” is a guiding principle that ensures the sustainability of our resources, and works well with the management of woody vegetation just as with grasslands. The chart provided in this article provides a list of plants and forage preferences as browse for white-tailed deer.

(Continued on page 5)



The author, left photo in foreground, checks out the browse line during a deer survey on Cantera Ranch in Mills County, Texas. Also, tender new shoots of plants such as Greenbrier, above, are highly sought after by white-tailed deer. (Photo credit: USDA-NRCS and Melissa Sturdivant-Figure 1)

(Continued from page 1— Frost Astor)

The plant tends to be hairy and the leaves are narrow, but this does not prevent it from being grazed by sheep, goats, and deer that keep it thinned out in our pastures. It grows much more abundantly in our roadsides and parks. I saw a cluster of it in a vase in the main living area of a newly built ranch home the other day. It made me feel good that there are some among us who appreciate the earthy beauty of our native plants enough to display them along with more classy items in a beautiful home.

Frost aster is successful without being aggressively weedy. It can establish by means of wind blown seeds following mechanical disturbance of the soil, but an individual plant has a life span of only a few years.

As one of the last of our native plants to bloom, it may provide a parting shot of pollen and nectar for honeybees before settling into the hive for the winter as well as a reminder that we are also connected to the plants that grow around us.

Days of Dust: The Legacy from the Dust Bowl

Story by Ricky Linex, USDA-NRCS

On October 11, 2012, author Timothy Egan was in Canyon and Amarillo, Texas, for discussions of the people, places and events described in his 2006 published book, *The Worst Hard Time*. During a morning session at the Panhandle Plains Historical Museum in Canyon an overflow crowd of more than 100 gathered to hear how local, state and federal responses affected life during the Dust Bowl days. Many in this crowd appeared to be old enough to have seen and lived through the 1930's as children. During the evening, Egan addressed approximately 300 attendees in Amarillo as part of an *Amarillo Reads* event that is part of an August-December observance called *Days of Dust*. Highlights of Egan's presentation are printed below:

(Continued on page 10)

The Homestead Act of 1862 provided 160 acres of land west of the Mississippi River for people to own and operate. The Enlarged Homestead Act of 1909 increased the acreage to 320 acres to encourage dryland farming. The Stock-Raising Homestead Act of 1916 increased the acreage to 640 acres. The peak of American homesteading was in 1914 and not in the late 1800s as might be thought. There were 53,000 claims on the High Plains for homesteads in 1914—"Every man a landlord!" Upon seeing the steel plow turning the buffalograss sod, a Native American remarked that the grass was *wrong side up*, perhaps predicting future problems within the area of the Great Plains.

The Worst Hard Time author Timothy Egan, right, discusses the effects of the Dust Bowl, and implications to the present and future during his October 11, 2012, visit to the Panhandle-Plains Historical Museum in Canyon, Texas. (Photo courtesy of Amarillo Globe-News)



(Continued from page 3—Hedgers, Browsers, Nibblers and More, Oh My!)

| CLASSIFICATION OF BROWSE IN CENTRAL TEXAS | | | |
|---|-----------------------|----------------------|------------------|
| CLASS I BROWSE | CLASS II BROWSE | CLASS III BROWSE | CLASS IV BROWSE |
| HIGHLY PREFERRED | DESIRABLE FOOD PLANTS | NOT HIGHLY PREFERRED | LEAST PREFERRED |
| Kidneywood | Elbowbush | Live oak* | Redberry cedar* |
| Spanish oak* | Roemer acacia | Shin oak* | Blueberry cedar* |
| Elm sp. | Carolina snailseed | Post oak* | Yucca* |
| Rusty blackhaw | Greenbrier | Flameleaf sumac | Tasajillo |
| White honeysuckle | Bumelia | Skunkbush sumac | Agerita |
| Carolina buckthorn | Roughleaf dogwood | Buttonbush | Persimmon* |
| Jersey tea | Fourwing saltbush | Hogplum | Mexican buckeye |
| Texas mulberry | Hackberry | Sycamore | Mesquite* |
| Possumhaw | Western soapberry* | Black dalea | Catclaw mimosa |
| Texas sophora | Wild plum* | Poison ivy | Willow baccharis |
| Mistletoe | Ephedra | Feather dalea | Lotebush |
| | Virginia creeper | | Whitebrush |
| | Grapevine* | | Pricklypear* |
| | Blackjack oak* | | Pricklyash |

*Mast or fruit is a highly valued forage source. Chart Source: Steve Nelle, NRCS Wildlife Biologist (Retired)

- Class I plants are like ice cream at the buffet. These plants are usually the first to disappear, and are in short supply unless they are in a protected area (e.g., fenced enclosure); they are highly palatable and nutritious.
- Class II plants are desirable, palatable, highly productive, and of high nutritive value. If these plants are absent or heavily foraged upon, this is a sign of too many deer (and/or livestock and exotics).
- Class III plants are not preferred by deer. But, because these plants are common, they make up a large part of a deer’s diet. These plants are not highly nutritious and not very palatable. If use is heavy, then it is a sign of deer overpopulation and nutritional stress.
- Class IV plants are the least preferred. But, when times are tough and other plants are not available, then deer will forage on this class of plants.



Figure 2

Jersey tea (Ceanothus herbaceus), foreground left, appears to be hedged compared to other woody vegetation on the fence line. Also, the terminal shoots, inset photo, and fruit of this season’s growth have been hedged by white-tailed deer. (Photo credit: Melissa Sturdivant, NRCS Soil Conservationist)

(Continued on page 7)

Annual Winecup (*Callirhoe leiocarpa*)

Story by Znobias Wootan
Junction, Texas

Nothing can compare to the vibrant color of a field of annual winecup. I think they are one of the few wildflowers that can actually outshine our favored Texas bluebonnet. Thank goodness that they bloom at different times so we don't actually have to make a choice on which one we like the most. Annual winecup, cowboy rose or tall poppy mallow is an annual species that will grow from 1 to 3 feet high. It freely reseeds itself to insure repeated blooming in following seasons, so if you don't won't it to come back you can dead head after blooming.

This wildflower can be found growing in pastures, prairies, mesquite groves, live oak motts, and along the sides of the highways throughout Texas and up through Kansas. The leaves have a very distinctive scalloped look and are in an alternate pattern. The flower has a dramatic color range from a reddish purple to fuchsia (my favorite) to a pink. Five brightly colored petals form the open cup shape of the flower which makes it particularly attractive to bees, butterflies and many other pollinators. Annual winecup has a blooming period from late spring starting right about the time the bluebonnets are ending, and will continue to bloom until midsummer. Even though annual winecup is an annual it develops a slender taproot that enables it to be drought tolerant and suitable for many xeriscaping projects. One thing to keep in mind if using it in a landscape setting is its susceptibility to slugs. Slugs seem to love the new tender seedlings and can consume the whole planting in one night.

Here on the farm we seed it directly outdoors in the field so we do not have the same problem with slugs as in a landscape setting because of the lack of suitable cover for the rascals during the day. Annual winecup doesn't like to be disturbed after germinating because of the rapid development of the slender taproot so it doesn't lend itself to transplanting very easily. Sowing seed directly outside into well drained soil will yield the best results. It thrives in dappled to part shade, but does great in full sun during a wet year with a little extra water.

Really the only problem that I can see is that deer find it pretty tasty. Never the less, I would still try some and if you want to plant it with a striking companion try standing cypress or prairie verbena. You will be thrilled.



Annual Winecup
(*Callirhoe leiocarpa*)

The left photo shows Annual winecup (Callirhoe leiocarpa) spanned out during a beautiful Texas sunset. Plus, the Annual winecup is pictured, right, showing five brightly-colored petals and how they form an open cup shape. (Photos courtesy of Native American Seed Company)



(Continued from page 5—Hedgers, Broswers, Nibblers and more, Oh My!)

For the Food Critic, the Buffet Line is Closed! Since a white-tailed deer's diet is made up mostly of browse plants and mast/fruit, knowing how much browse they are eating is important in keeping track of the rangeland health and of the deer populations. Take a closer look at that browse line, and it'll give you some clues as to the rangeland health conditions and determine if it's sustainable. If you have a browse line, then rangeland conditions are in decline. How healthy can an unhealthy browse line be? Although the following are generalizations, these guidelines can help you in determining the health of your browse line:

During the growing season, *proper use* of browse plants occurs if 50 percent or less of the current season's growth of twigs, leaves and fruit (by weight) has been utilized (e.g., foraged upon).

During the dormant season, *proper use* of browse plants occurs when 65 percent or less of available twigs on deciduous browse and leaves of evergreens have been foraged upon.

Is hedging evident? Tender growth of plants such as greenbrier (Figure 1) is highly nutritious and a delectable treat. As new growth is consistently browsed upon, a hedging effect occurs such as with the Jersey tea (Figure 2). Plants that should be taller and more robust become more shrub-like and appear stunted losing their vigor after years of uncontrolled herbivory. If half or more of the stand appears hedged, then this browse use would be ranked as moderate to severe. Use of exclosures can assist in monitoring for proper use and to decrease pressure on more desirable browse (e.g., Class I and II plants).

Is a browse line present? When unabated browsing of lower limbs and new growth occurs yet left unchecked, a browse line can develop and woody vegetation is literally "limbed up" and is no longer available as forage for wildlife. Foraging can occur from ground-level up to 6 feet or higher.

What is the reproductive capability or the rate of seedling recruitment? How many seedlings are present? Is there enough seedling recruitment to sustain the plant population? Are there more seedlings for Class III and IV plants than more desirable plants? Are the Class I and II plants being decreased as less-quality seedlings encroach and increase?

NRCS conservationists use rangeland assessment tools, such as determining browse utilization to assist landowners in managing their natural resources. Something is always feeding on our native vegetation whether it is insects, upland game birds, songbirds or mammals. How much is enough or when does it become too much? All of these factors: use of current and dormant growth; evidence and extent of hedging and browse lines and reproductive capacity, are considered when evaluating rangeland health and available forage.

Conservation and moderation, whether it's at the buffet or on the rangeland, is the key to managing our natural resources as well as sustaining them. Should you need assistance in evaluating your browse utilization, please consult with a conservationist at your local NRCS field office. Melissa Sturdivant can be reached via emailed at melissa.sturdivant@tx.usda.gov.

Wooden Nickel Quiz

Identify these wooden nickels cut from trees and shrubs commonly found in the Rolling Plains vegetational region.



Photo courtesy of Ricky Linex, USDA-NRCS

(Answers on page 10)

It's Not Rocket Science

Story by Steve Nelle
Retired NRCS Wildlife Biologist
San Angelo, Texas

At a riparian workshop in New Mexico, one of the instructors repeated a quote he had heard: *"This riparian stuff is not rocket science ... it's much more complex than that."*

This statement made me feel much better about my seemingly slow rate of understanding riparian dynamics. Up to that time, I had attended and even helped to teach a number of basic riparian workshops, but I knew that I did not understand it very well. I was especially confused about the interaction of the hydrology and geomorphology and the forces of sediment transport, channel evolution and other physical aspects of creeks and rivers.

Hans Einstein, son of Albert Einstein was a hydraulic engineer, who studied sediment transport processes in rivers. It is reported that his father once asked Hans, "why is it that you wish to study something so complicated?"

If Albert Einstein thought it was complicated, how could any regular person ever hope to understand the complexities of creeks and rivers? These complexities continue to intrigue and challenge me. Until ordinary people can understand the basics of how creeks and rivers work, there will continue to be slow adoption of good riparian practice. If people do not understand why something is important, they are not likely to adopt it.

With this in mind, I have sought to understand the fundamental aspects of hydrology and geomorphology that influence how creeks function and work in the landscape. The good news is that this stuff is understandable – even to common people. Very few of us have a degree in hydrology, physics, fluvial geology, or other related disciplines; and fortunately, degrees are not needed to appreciate and understand the basics well enough to put them into practice.

As with most other educational efforts, repetition is the key to understanding difficult concepts. A single exposure to a complex subject is usually not enough, but hopefully, it will stimulate curiosity and the desire to continue and deepen the learning process.

There is no greater issue in Texas than water. Texas has over 190,000 miles of creeks and rivers. These are the main arteries of our water supplies. The water supplies of Texas depend on functional creeks and rivers. When creekside and riverside landowners understand how creeks and rivers work, they will be more likely to practice good riparian and streamside management. This benefits all Texans.

The water challenges of Texas will never be resolved until more people understand how creeks and rivers work, including the vital role of voluntary land stewardship, which helps sustain flows and maintain water quality. Landowners, policy makers, agencies, conservation and agricultural organizations all need to work together with greater cooperation to help sustain, maintain and restore the most precious and valuable natural resources that we have. The quote may sound better reading:

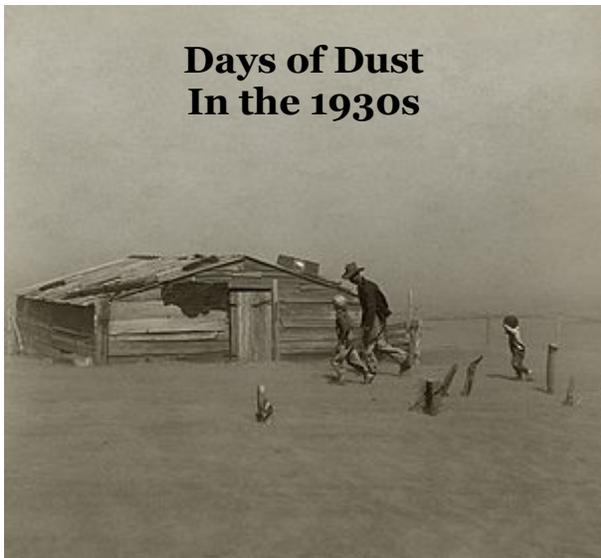
"This riparian stuff is not rocket science ... it is much more important than that."

(Continued from page 8— Wooden Nickel Quiz)

A special thanks goes out to Steve Nelle and Randall Linex for supplying these nickels for this issue’s quiz, and to Roger Q. “Jake” Landers for initiating the idea of the nickels. In the 2013 January/February issue of the Reverchon Naturalist, trees and shrubs from the Cross Timbers region will be featured. The answers to this issue’s quiz are as follows:

1. Buttonbush
2. Western soapberry
3. Bumelia
4. Algerita
5. Redberry juniper
6. Catclaw acacia
7. Wild plum
8. Mesquite
9. Catclaw mimosa
10. Tasajillo
11. Sand sagebrush
12. Ephedra

Stay tuned for more Wooden Nickel Quizzes in the Reverchon Naturalist to sharpen your identification skills throughout many of the regions in North-Central Texas.



Days of Dust In the 1930s

A farmer and his two sons during a dust storm in Cimarron County, Oklahoma, 1936, during the Dust Bowl. (Photo Credit: Arthur Rothstein)

(Continued from page 4— Days of Dust)



Dust storm approaches Stratford, Texas, on April 18, 1935. (Photo credit: NOAA Geo. E. Marsh Album)

Franklin D. Roosevelt began his first presidential term in 1933, during the combined hardships of the Depression and the Dust Bowl. He appointed Henry Wallace as Secretary of Agriculture who initiated several new programs to ease the suffering and stabilize farm prices, part of Roosevelt’s “New Deal” Programs. “The Constitution of the United States does not guarantee the rights of a pig to grow to full pigginess,” quoted Henry Wallace, in support of the killing and processing of 6.4 million pigs in August-September 1933. The pig slaughter was part of the Agricultural Adjustment Act which helped stabilize commodities including wheat, corn, cotton, tobacco, rice, hogs, and milk.

The Civilian Conservation Corps (CCC) began in 1933 putting unemployed, unmarried men 17-28 years of age to work in public work relief projects across the nation. Among many projects completed in Texas were state parks, roads and schools. Within the Great Plains area 217 million trees were planted in shelterbelts. By the time the program ended in 1941, 2.5 million young men had worked on CCC projects. In 1933, FDR established the Soil Erosion Service, later becoming the Soil Conservation Service (SCS) in 1935, which helped farmers heal the land damaged during the Dust Bowl.

(Continued on page 11)

(Continued from page 10— Days of Dust)

Changes in farming techniques, demonstration projects and planting some land back to native grasses helped restore the land. Hugh Hammond Bennett was the first Chief of the SCS. Soil and Water Conservation Districts (SWCD) were established beginning in 1937 with Brown Creek SWCD, North Carolina being the first district established. The Civilian Conservation Corp and the SCS were the lasting legacy of the New Deal.

The icon of the west in song and story, the tumbleweed, also known as Russian thistle (*Salsola tragus*), was first brought to the United States by Russian immigrants settling in North Dakota in 1873.

During the great plow up preceding the Dust Bowl, German farmers from the Volga region of Russia brought seed of Turkey red, a hard winter wheat, sewn into the pockets of their vests. Mixed in with the wheat seed were the seeds of Russian thistle, an accidental passenger. Warning signs of an impending duster include: birds and animals fleeing ahead of the storm, along with static electricity that would be strong enough to short out automobiles and knock people down.

The worst of the dust storms was called Black Sunday and occurred on April 14, 1935. This storm was 100 miles wide and a mile high, and represented as much soil as was dug out of the Panama Canal during its seven years of construction. “It is human nature when things are going good that you think they will never go bad,” stated Timothy Egan.

Timothy Egan is an American writer and journalist. His 2006 masterpiece entitled, *The Worst Hard Time*, about the people who lived through the Great Depression’s Dust Bowl earned Egan the National Book Award for Nonfiction and the Washington State Book Award in history/biography.

Indiangrass

*Story by Ben McNally
NRCS District Conservationist
Barlett, Texas*

Indiangrass (*Sorghastrum nutans*) is a warm-season, perennial, rhizomatous, native bunchgrass that was a component in the “Big Four” grasses of the Tallgrass Prairies. The “Big Four” is comprised of indiangrass, big bluestem, little bluestem, and switchgrass. These species were the dominate grasses in the Tallgrass Prairies of the Central and Eastern United States. Indiangrass ranges from South-Central Canada down to Northern Mexico. It can be found in open grasslands and in the understory of Longleaf Pine stands.

Indiangrass can grow in poor to well-drained soils, acid to alkaline conditions, and sand to clay textured soils. It grows best in deep, well-drained floodplain soils and well-drained upland sandy loam soils.

Indiangrass usually grows 3 to 7 feet in height. It starts growing in mid-spring, and puts on yellowish-gold feather like seed heads in September to November. The leaves of the grass are blue-green in color. There are approximately 170,000 seeds per pound. The small seeds are fluffy with small awns. It is easily identified by its distinguishable ligules that look like bunny ears or rifle-sights that are located where the leaf blades connect to the leaf sheath. *(Continued on page 14)*



Indiangrass (Sorghastrum nutans), above, as seen on many roadsides throughout the state of Texas. (Photo courtesy of Ben McNalley, USDA-NRCS)

Wetlands Reserve Program Providing Benefits in the Trinity River Basin

Story by Randy Henry, USDA-NRCS

For three generations, the Reed Family Ranch has been tucked away in the Post Oak Savannah and Blackland Prairie region of the Trinity River Basin on 1,780 acres in Navarro County, Texas. The ranch features wetlands, hills, wildlife habitat and majestic landscapes.

Largely a cow/calf operation since the 1940s, current ranch owners Jim Reed and his wife Judy wanted to expand the ranch's income potential while having a land management plan in place that could enhance the wildlife habitat and hunting possibilities, while keeping the cow/calf operation thriving for the next generation.

Jim started planning for a combination of wildlife habitat and grazing management for income on the ranch, and he chose the holistic resource management approach to make it successful. In the late '90s, he started working with the USDA-Natural Resources Conservation Service (NRCS) to address his conservation goals. The NRCS was able to make recommendations including grazing grasses that would fit the soil types on his ranch.

"The most difficult part of having a successful cow/calf operation was finding people with good cowboy skills and the willingness to operate an effective grazing system," Jim said. "The establishment of native grasses made this much more productive from both a grazing and wildlife standpoint."

He added that the new grasses will create conditions for a worthwhile water filtration system for generations to come, and a more productive cow/calf operation as well.

"The planting of native switchgrass and eastern gamagrass was good for the landscape and environment, as well as excellent for wildlife on the ranch," said Jim. "Those grass species made excellent beddings for increased fawn protection and survival, but also was great for moisture retention and the prevention of erosion."

Jim started seeing the value in establishing partnerships with state and federal agencies that could help bring his land management focus to reality, and stay within his holistic resource management approach.

Texas Parks and Wildlife Department (TPWD) helped the Reeds establish a long-term plan to enhance the wetlands on the ranch and other natural habitat areas for various hunting seasons. The wildlife included white-tailed deer, turkey, feral hogs, ducks and other waterfowl to increase the income potential from weekend hunters and hunting club members. *(Continued on page 13)*



The left photo shows a completed Wetlands Reserve Program area on the 1,780-acre Reed Family Ranch in Navarro County, Texas. Judy and Jim Reed, right, are shown enjoying a hike on their ranch that reflects excellent land stewardship and habitat management. (Photos courtesy of Reed Family Ranch)



(Continued from page 12— Wetlands Reserve Program)

“The plan will maintain and improve developed habitat for waterfowl, fur-bearers, along with wetland flora and fauna while establishing native grasses and hardwood trees to be managed for feeding, roosting and nesting purposes,” Jim said.

In 2001, the Reed Family Ranch was presented with the regional Lone Star Stewardship Award by TPWD and set in motion the real-time land management goals Jim had desired to accomplish on the ranch. While working with TPWD to accomplish these goals, he needed help with the wetland restoration process and looked to the NRCS and the Wetlands Reserve Program (WRP) for technical and financial assistance.

“While researching the NRCS goals for wetlands, I found that WRP and the holistic goals of the ranch were consistent with one another,” said Jim. “WRP and NRCS have been very helpful in fleshing out my understanding of all the advantages of a wetlands preserve on the ranch.”

In a WRP agreement, which is a warranty easement deed held by the United States in perpetuity, between USDA-NRCS and the Reeds signed in 2011, there were 1,168 acres set aside that would benefit wetlands preservation, wildlife and riparian habitat, and create a sustainable outdoor landscape for wildlife, humans and the environment. NRCS started working closely with the Reeds providing the technical and financial assistance needed to have the construction of wetlands restored and increase environmental benefits.

In Navarro County, NRCS Natural Resources Manager Kristy Oates noted WRP and the Reed Family Ranch are a perfect fit for a wetlands program, so in June 2011 a detailed engineering and conservation plan was written by NRCS for 76 acres encompassing four constructed restoration sites with swales, kidney ponds, and conical ponds on the ranch.

“WRP easements are extremely important to the wetland wildlife habitat for migratory birds, wetland dependent wildlife, and protecting and improving the water quality within the Trinity River Basin,” Oates said. “The newly constructed swales and ponds on the Reed Ranch are unique habitats supporting both wildlife and aquatic ecosystems, and focus on their restoration needs with a wetland environment helping the resource concerns on the land.”

At present, the wetlands project on the Reed Ranch has both open water and seasonal pools to attract waterfowl and many types of wildlife, including turkeys, white-tailed deer, and other migratory birds.

“The 2012 construction of 76 swales, conical and kidney ponds are in line with the ranch’s holistic goals for the management of water runoff, early plant succession, and holding soil moisture for more complete growth of natural landscapes,” Jim said.

Jim addressed the partnership that has developed between the Reed Family Ranch and NRCS, and the technical guidance NRCS provided during the wetlands project.

“It’s an excellent partnership while allowing for exciting land stewardship and sustainability, and we look forward to working with all the NRCS personnel in the future,” he said.

(Continued from page 11— Indiangrass)

Moreover, Indiangrass has many uses for livestock, erosion control, restoration, wildlife, and pollinators. Indiangrass can be used in rangeland, pastureland, and hayland. It can be used for livestock grazing or hay production. It is a high quality livestock forage when green and fair when it is mature. If properly managed Indiangrass will not need to be replanted after a stand is established. Proper management is key to maintaining a stand of Indiangrass due to its susceptibility to damage through overgrazing. Damaged stands can be invigorated through proper grazing regime, prescribed burns, and in some cases by the use of herbicides and fertilizers.

It is useful in erosion control in critical areas, roadside cover, and areas susceptible to wind erosion. Many different types of wildlife use Indiangrass, including white-tailed deer for browse, cover and nests for bobwhite quail, and the seeds are eaten by birds and small mammals. Pollinators utilize the grass for a larval food source.

Buffalograss

*Story by Cordelia Redman
NRCS Soil Conservationist
Henrietta, Texas*

Buchloe (*Buchloe dactyloides* (Nutt.) Engelm. Synonym of *Bouteloua dactyloides* (Nutt.) Columbus) or buffalograss comes from the Greek word *bous* meaning cow or ox and *chloe* meaning grass. For such a small and inconspicuous grass, Buffalograss was one of the most important grasses on the Great Plains and helped to sustain the enormous herds of buffalo that once roamed.

Buffalograss is found growing on grasslands throughout Texas from April through September, and it produces seed throughout the year. It is a small grass growing only to approximately 6 inches in height, and is a warm-season perennial shortgrass that is native to Texas and the Great Plains.

Buffalograss is dioecious which means the staminate flower, the male, and the pistillate flower, the female, grow on separate plants. The male plants have 2-3 flag-like seed heads elevated above the leaves that can be spotted by the bed of little flags swaying in the breeze in pastures. The staminate inflorescences have 1-4 spike-like branches 6-14 mm long, and the spikelets are usually 6-12 per branch. The spikelets are pectinately, or comb-like, arranged, as the pictures show below.

On the other hand, the female or pistillate inflorescences is a bit harder to detect, you usually have to hunt for her, as buffalograss grows in separate colonies as well as separate plants. The female plant bears seed in bur-like clusters (that resemble a common grass bur without the prick) usually hidden in the leafy portion of the plant, closely subtended (or enclosed) in the leaf sheaths. There are usually 3-5 and up to 7 of these little burs. (Continued on page 15)



*The female inflorescence,
above, is hidden in leafy por-
tions of the plant.*



(Continued from page 14—Buffalograss)

Another means of detecting buffalograss are the stolons. Stolons are horizontal branches also called runners that extend from the base of a plant that produce new plants from buds at its nodes. As you walk through the pasture if you see these stolons running along the ground it could be buffalograss, especially if you see these little white flags waving over a bed of grass.

As well as being a means of detection, these stolons help to make the buffalograss form a tight knit sod which made it very useful to settlers of the plains. As numerous settlers arrived on the plains, timber became a scarce resource forcing them to find other means to build homes. Early pioneers discovered that the buffalograss sod made a tough and flexible brick. From this brick, they were able to build homes, barns, post offices, and schools creating the first settlements of this great land.

Buffalograss provided food for the buffalo which, in turn, sustained the lives of so many on the Great Plains, and settlers used the sod to settle the land. With its versatility and importance to the history of our region, it is fitting that those native to this land gave this small grass such a big name as the buffalo's grass.

Osage Orange—A Tree With Many Names and Uses

Story by *Ben Wissinger, NRCS Range Management Specialist*
Vernon, Texas

Osage orange is known by many different names including hedge or horse-apple, bodark, Bois d'Arc, mock orange, and bow-wood. The scientific name for this tree is *Maclura pomifera* (Rafin.) C.K. Schneider. Osage orange can be found in almost every state in the United States due to its multi-purpose rot resistant wood. Native Americans in the Red River Valley used the wood to make bows. Early settlers to that region planted the densely growing trees, which formed a hedge, as fencing for livestock. During the early to mid-nineteenth century, Osage orange hedges were promoted as the premiere fence and the trees were planted throughout the country. Today wire fencing is used, but Osage orange wood is still used for fence posts. In addition, this tree has several other potential uses including high energy oil from the seeds and antioxidants in the fruit.

The Osage orange tree is deciduous and can grow to 65-feet tall. The young branches have thorns, which along with its habit of growing close together, contributed to livestock control. The bark is thick and shaggy with orange tints, sometimes used as a dye. Osage orange leaves are simple and between two and five inches long. Turning yellow in the fall, the leaves are oval shaped and shiny. Osage orange are dioecious, having separate male and female trees. The flowers are wind pollinated in the early summer. The distinctive softball-size fruits form in early fall and are light green with many ridges formed from the combination of dozens of one-seeded drupelets. The fruits drop and rot, creating hard dark brown masses that crumble releasing the seeds. (Continued on page 16)



*The fruit, left, of the Osage Orange (*Maclura pomifera*) is the size of a softball, while the tree itself, right, has many names and multiple uses. (Photo credit: Ben Wissinger, USDA-NRCS)*



*Osage Orange
(*Maclura pomifera*)*

(Continued from page 15— Orange Osage)

When not planted for fences or windbreaks, Osage orange trees are typically found on land that has been disturbed particularly on overgrazed rangeland. They are a pioneer species and establish quickly from seed after a short cold period. Although they can become invasive in many areas, these trees are beneficial to animals. Horses eat the Osage orange fruits, while the seeds are popular with squirrels and other small mammals and birds. The dense groves of trees provide shelter and shade for wildlife and livestock. The Osage orange is a historically significant tree that is still used by both humans and animals in many diverse ways.

Mexican Sagewort

Story by Jason Gerngross
NRCS District Conservationist
Gainesville, Texas

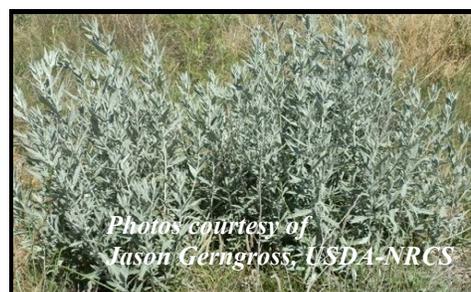
Mexican sagewort (*Artemisia ludoviciana*) is also known as White sage, Cudweed sage-wort, Prairie sage, Louisiana sagewort, or silver sage, and is closely related to sagebrush. This forb is established throughout western North America and is considered native. Mexican sagewort can be found in a variety of different soils, for instance, deep, rich and gravelly soil. When looking for a Mexican sagewort, you may want to keep your search site in the vicinity of semi-shade, live oaks, a semi-dry site, road sides, disturbed sites, south exposure, open prairies and woods, for these descriptive areas is where Mexican sagewort tends to reside. Mexican sagewort reproduces from seeds and rhizomes and often grow in colonies. This sagewort is an upright plant, where the stems can grow over two-feet tall. The coloring is light green and gray, and the leaves construct an alternating scalloped shape structure. The Mexican sagewort's flowers are hard to see and grow in a cluster along the stem, this occurs in the months of August to September. Its longevity is perennial and is a warm season plant which suggests it will thrive better in warmer seasons such as spring and summer.

The Mexican sagewort has various uses and which some are still used today. A diverse range of Native American tribes practiced numerous uses of this sagewort plant. It ranged from curing stomach aches, nose bleeds, sinus troubles, sore throats, and headaches. The plant is still used today in a practice which is known as smudging. The idea behind smudging is strictly for cleansing and purification, which would be constructed of Mexican sagewort stems and tied together to create a smudge stick, then lit on fire to allow it to smoke or smudge. Mexican sagewort is also used for teas, baths, and even for antiperspirant.

Besides humans, wildlife and livestock may also benefit from the Mexican sagewort. Wildlife such as smaller animals in a desert area, may favor it as crucial cover. The sage grouse find this to be a very superior item of their diet as well. For livestock such as cattle, Mexican sagewort can be an excellent forage selection, but is not favored as much compared to other forbs or grasses. Browsing animals, such as small mammals, mountain sheep, and elk also benefit from this forb.



Mexican Sagewort
(*Artemisia ludoviciana*)



Photos courtesy of
Jason Gerngross, USDA-NRCS

USDA is an equal opportunity provider, employer and lender.