

The Midden

Big Bluestem by Diane Humes

Galveston Bay Area Chapter - Texas Master Naturalists

October 2013

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Fall is Approaching

by Sara Snell, President 2013

Summer is quickly wrapping up and Fall is fast approaching. The chapter has many exciting opportunities with a variety of Advanced Trainings, a Chapter sponsored Camp-out at Galveston Island State Park, an array of prairie restoration activities, a revived interest in Education Outreach, and the upcoming State meeting, just to name a few.

Fall is also the time to start preparing for next year's Training Class, upcoming board elections, Treasures of the Bay awards and our end of year chapter celebration.

There is definitely something for everyone and enthusiasm and interest is to be shared. If you have been thinking of getting more involved - now is the time to try something new or to re-engage. I look forward to seeing you in the classroom, the prairie, the beach, the bay, the marsh or over a cup of coffee.



Next Chapter Meeting

October 3rd

Prairies

Dennis Jones
Park Interpreter - TPWD

At Carbide Park

Julie Massey and Dr. William Johnson accepting the AED for the Galveston Agrilife Extension Office. For more information, see the story on page 9. Photo by Scott Buckel.

Prairie Ponderings

by Dick Benoit

Within the last month, three articles I read talked about prairies: an improbable article by Thomas Friedman in the *New York Times* titled "Kansas and Al Qaeda", another in *The Galveston County Daily News*, "Prairie's Comeback", and lastly, in the *Houston Chronicle*, "The Clock is Ticking for Deer Park Prairie".

Friedman's article describes a prairie as a diverse wilderness, with a complex ecosystem that supported all kinds of wildlife until the Europeans arrived, plowed it up and covered it with single-species crop farms, mostly wheat, corn, or soybeans. These annual monocultures are much more susceptible to disease and require much more fossil fuel energy to plow, fertilize, plus pesticides to maintain. Perennial polycultures, by contrast, provide species diversity that features material recycling, run on sunlight, and have more resistance to drought and disease. He compares Kansas prairie in its natural polyculture state to Al Qaeda monoculture state without diversity. After a week's vacation in the Hill Country, the monocultural fields of corn were brown and dead, whereas polycultural fields were green and growing.

The second article "Prairie's Comeback" was front page with Jim Duron pointing the way to the comeback. This article covered the Restoration Roundup at Texas City Prairie Preserve, sponsored by the Coastal Prairie Partnership, and attended by 80 interested people. This workshop was for farmers, ranchers, conservationists and volunteers interested in learning recently-studied techniques for restoring and preserving prairie. The day was a hands-on demonstration of techniques, ranging from seed drilling to bail busting and plant plug planting. The information was well received by such a diverse group interested in prairie restoration, judging from their interest and interaction.

The last article, "The Clock is Ticking for Deer Park Prairie", was about how a local group needed to raise \$4 million by August 20 to purchase 50-acre rare prairie in Deer Park. The article is well written by Lisa Gray of the Houston Chronicle. Since the article was written, over \$3.5 million has been raised, with a blitz campaign going on as I write to raise the remaining sum. Again, a small, dedicated group of individuals is producing big results. The picture accompanying the article is properly identified as Indian Plantain - not a grass, but a forb. What is the seed head to the bottom right of the picture?



Along with these three articles, this summer Diane Humes introduced me to John Madson's *Where the Sky Began: Land of the Tallgrass Prairie*, a very interesting book with excellent historic background on tallgrass prairies. Also, from Mel Measeles and our own mini shop, I purchased a copy of *Guide to Texas Grasses* by Robert Shaw, an excellent guide that is well illustrated with drawings, pictures and graphs. Keep on reading to keep abreast of what is happening in the prairies.

Wetland Wanderings

by Diane Humes

Coon Valley - The Nation's First Watershed Project

Coon Valley is located in southwestern Wisconsin in the Driftless Area, a geologically interesting area where bedrock is overlain with glacial "drift" and fertile loess soil. Coon Creek flows to the Mississippi River through its deeply incised valley, with cliffs higher and the valley deeper as it reaches the Mississippi. The Coon Creek Watershed is 22 miles long and 9 miles wide.

Wheat farmers grew bumper crops in Coon Valley from 1847 to 1870, until the soil fertility faded. They were followed by dairy farmers, who grazed cattle and planted

crops wherever they could on the steep terrain, plowing furrows straight up and down the hillsides.

"More cows, more silos to feed them, then machines to milk them, and then more pasture to graze them - this is the epic cycle which tells in one sentence the history of the modern Wisconsin dairy farm. More pasture was obtainable only on the steep upper slopes, which were timber to begin with, and should have remained so. But pasture they are now, and gone is the humus of the old prairie which until recently enabled the upland ridges to take on the rains as they came," said Aldo Leopold in 1935.



By the 1920s, Coon Valley farmers were in dire straits because of the condition of the land. Formerly wooded hilltops could have absorbed 17 inches of rain with no runoff, but by then even small storms tore great gashing gullies out of hillsides. Soil disappeared much faster than it could be replenished; a lot was deposited up to thirteen feet deep on the valley bottom; a former mill was completely buried. The topsoil eroding from the hillsides also made its way to the Mississippi River and on into the Gulf of Mexico.

Said Aldo Leopold, "Coon Valley...is one of the thousand farm communities which, through the abuse of its originally rich soil, has not only filled the national dinner pail, but has created the Mississippi flood problem, the navigation problem, the overproduction problem, and the problem of its own future continuity."



Recognizing the seriousness of the situation, the U.S. Soil Erosion Service (SES, now NRCS), a multi-disciplinary group of pioneering conservationists, proposed to use every method known to address erosion control and the integration of all land crops, forestry, game, fish, fur, flood-control, scenery, songbirds, or any other pertinent interest. The federal government provided free labor, wire, seed, lime and planting stock; the farmer had to reorganize his cropping system and give it a 5-year trial. At each farm, changes were required: exclusion of cows and crops from steep slopes, using them for wildlife only. Flat lands received more intensive

cultivation, sloping fields were terraced for pastures or crops, gullies were repaired and trees planted.

In 1933, the first national watershed demonstration project began with the cooperation of half the Coon Valley farmers. One of the first to sign up, farmer Bill Steenberg, related, "I was desperate, my wife had died, my five children were hungry, I didn't have enough feed for my 12 cows, and my fields suffered from drought and erosion. I knew I had to give up or change."



Dramatically successful results were apparent almost immediately; much was learned in the process. Today, conservation practices have reduced valley sediments 94% since the 1930s and restored farmland productivity. Most woods are ungrazed and managed, flooding has been greatly reduced, wildlife is more abundant, and fishing for native brook trout in the area is unmatched in the Midwest. Last year the watershed received its greatest test since the 1930s. In August 2012, over 16 inches of rain fell in Coon Valley in less than 10 hours. While many farms suffered from erosion and flooding, history reminds us that in the 1920s, two-inch rainfalls caused damage and danger to the communities in this valley.

With demonstrated success, the farming methods used in Coon Valley spread out to other valleys in the Driftless Area. Today, the University of Wisconsin is working with farmers to define to the "culinary identity" of the region and develop agrotourism. Look for artisan cheeses made from milk of cows grazing on pastures, wines, hard apple ciders and grass-fed beef.

Coon Valley, Wisconsin is 1300 miles north of Galveston, Texas; we are about as far downstream from it as we can be. Aren't you glad that our upstream neighbors are doing so well taking care of their watershed? Don't you wish everybody did?

A Visit to Galveston County's Levee by Steve Alexander

It's that time of year again: hurricane season. And once again there's talk of building new barriers like the Ike Dike to protect us from the sea.



Whatever is built will join Galveston's 10-mile seawall and Galveston County's 16-mile Hurricane Protection Levee. Galveston's seawall - its first few miles built more than a century ago - is well known for its beaches, hotels and restaurants. But I would guess few have visited Galveston County's levee, a lesser-known barrier that has been protecting the mainland since 1987.

The levee is shaped roughly like a horseshoe, its curved 23-foot wall facing east protecting Texas City and La Marque, several major roadways, a large industrial water reservoir, the Texas City Prairie Preserve, Moses Lake, a major port and a host of chemical and petrochemical plants. Like all levees, it has a single purpose: to prevent landward flooding. Its height - 6 feet higher than the seawall - was built to thwart hurricane-induced storm surges from Galveston Bay and two of its major tributaries, Dickinson Bayou to the north and Highlands Bayou to the south.

Although walking atop the levee provides the most up-close look, I wouldn't recommend it because long sections are on private property, run through the Port of Texas City or require passing locked gates.

Fortunately, there's an alternative to walking: a 5-mile drive along Skyline Drive, which runs atop the levee from the Texas City Dike to the Moses Lake Floodgate.

To reach Skyline Drive, turn left at the foot of the Texas City Dike. At the top of the levee, you'll get some great views of Galveston's east end, Bolivar Roads, Bolivar Peninsula and the wide expanse of Galveston Bay. Continue driving north, watching for the popular windsurfing area where on most windy days you can spot colorful sails folded by the wind, swiftly carrying their passengers on the water below.

After passing the Bay Street Extension, to the left you'll see views of the expansive marshlands surrounding Dollar Bay and Moses Lake. Visible near the end of Skyline Drive are the scattered houses of Grand Cay Harbour, a new bayfront development possible only because of the protective wall you're driving on.

Road's end is clearly marked by the towering Moses Lake Floodgate. Here you can park and set out on foot for bayside views of Dickinson Bay and San Leon and levee-protected views of Moses Lake and the distant shoreline of the Texas City Prairie Preserve, one of the few remaining places that support the highly endangered Attwater's Prairie Chicken.

Taking one of the trodden footpaths on either side of the levee will lead you down to the water for a close look at the levee wall and floodgate. If you climb down the Moses Lake side, you'll see boats anchored near the open floodgate and fishermen lining the shore, all casting into the swirling waters of an incoming tide, vying for fish with gulls, terns, cormorants, pelicans and skimmers.

On your way back down Skyline Drive, stop and walk the mile-long trail that begins just to the left of Grand Cay Boulevard. There you'll see Moses Lake's wetlands and wildlife. The trail travels through the prairie before reaching the smooth cordgrass and black rush-lined salt marsh shorelines of Moses Lake.

The Galveston County levee may not have the same tourist appeal as Galveston's seawall, but whether you go to sightsee, fish, walk a nature trail or do some birding, you'll enjoy the drive down Skyline Drive.

Rescheduled: First Annual Campout at GISP by Tawy Muehe

The First Annual GBAC Campout on October 4th - 6th has been postponed, because it was in conflict with too many other events. The Board rescheduled it for the weekend of January 24th - 26th, 2014.

If you have already paid Tawy, your payment will be returned to you at the October Chapter meeting.

Mark your calendars now for January 24-26, 2014!

Earth Aliens: Life in Extreme Environments

by Diane Humes

On the evening of August 15, 2013, twenty-two eager master naturalists (and spouses) assembled at the Lunar & Planetary Institute for Advanced Training (LPI) about past and present very weird life forms and the search for life on Mars. The prepared mind...and all that. If you were unable to attend, you missed an exciting evening.



Allan Treiman, senior staff scientist at the LPI, first described ancient fossil creatures found in the Burgess Shale of the Canadian Rockies. There was *Opabina*, a small creature with 5 eyes and a long frontal appendage, *Hallucigenia*, a small crawler with incredible spines, and *Anomalocaris*, a 1-meter long predator of the seas. These critters lived 505 million years ago and seem more than a little strange to us.

We, as a group, then discussed extreme environments: dry, hot, cold, chemicals, radiation, and environmental instability. For example, salt flats are extremely salty and, as a consequence, life forms must maintain their cellular osmotic water balance to prevent desiccation. *Halobacterium*, which lives in saturated salt solutions, deals with this by having glycerol, sugars or potassium chloride in its cells.

Some organisms are able to withstand intense UV radiation. They produce UV-absorbing pigments, such as the carotenoids, the red pigments which protect new spring leaves. Or they maintain multiple copies of their DNA. Other organisms can withstand nuclear radiation, which breaks chemical bonds and is lethal to most life. *Deinococcus radiodurans* is a bacterium which lives quite happily inside nuclear reactors!

Bacteria live and grow on snow - "pink" or "watermelon snow" - withstanding the cold by having "antifreeze" in their cells. And algal slimes somehow grow in hot springs barely below boiling temperatures.

Local extreme environments include the highly unstable tidal flats and ocean surf zones, roof tops, inside water heaters, the Brio superfund site, oil spills, or inside the human stomach, yet life goes on in all of them. But an animal found underfoot in mosses, lichens, and compost, is one of the most extreme. This is a tardigrade, a "water bear", or "moss piggy". The tardigrade is about 1 mm long and we viewed one under the microscope that had been captured outside the LPI. Everyone was able to observe the extremophile capable of withstanding temperatures from near boiling to near absolute zero, high pressures, intense radiation, and the vacuum of space, plus remain dormant for 10 years, then spring to life when water appears. Some think that tardigrades will rule the Earth when all other life has vanished.

The planet Mars is an extreme environment. It is dry, cold, has a thin atmosphere - mostly carbon dioxide - has salty, acid soil, and intense radiation. Yet lots of water ice exists underground and at the poles. So, past forms of life are thought possible.

The Curiosity rover has been on Mars for just over one year and Allan expects it may roam Mars for another ten years. He answered many questions about the rover, the mission and the environment on Mars. Stay tuned for many fascinating discoveries.

Many thanks to Arline Laughter, Ken Russell, Odie and Marie Asscherick, and Karen Gidlow for delicious refreshments.

Education Outreach Committee Report

by Stennie Meadours

The Education Outreach Committee is up and running with lots of enthusiasm, involvement and ideas. We meet at 10:00 am on the third Thursday of the month. We are working on establishing a GBA-MN Expert Speakers team, completing an inventory of resources, starting a Jr.

Naturalist program, and planning future activities. The next meeting is at 10:00 am September 19, 2013 at Carbide Park. Please join us if you would like to share your expertise and help us reach more adults and children. Stay tuned!

Monarch Oe Parasite Sampling and Tagging Workshop by Vic Madamba

Have you ever hand fed a Monarch Butterfly, built a cage to protect the monarch's egg and caterpillar, sampled for the *Ophryocisitis elektroscirra* (Oe) parasite, or put a mini-tag on a monarch's hind wing? The hands-on workshop covered all the above and more on August 9, 2013 at the AgriLife Extension Office. For the workshop, live Monarch Butterflies were used and released after the training.



First, the newly hatched butterflies had to be hand fed with a mixture of one part sugar and four parts water. Using toothpicks, several of the attendees experienced unraveling the monarch's proboscis onto the mixture, while others watched day-old monarchs drink with gusto. After the feeding, a cage was assembled for protecting caterpillars while feeding on milkweed. The cage, which has a styrofoam top, is placed over a potted milkweed for protecting eggs and caterpillars from predators. When the caterpillar is ready to "J", it will climb to the styrofoam, attach itself and stay there until it hatches (eclose).

After presentations on Monarchs, Oe Biology, and Milkweeds, the attendees learned how to Oe sample a monarch using round adhesive tape to get an impression

of the monarch's abdomen. The tape is then placed onto an index card, numbered and Oe sampling form filled out. The index cards and forms are then sent to Odum School of Ecology, University of Georgia for analysis. Any Oe, if any, will be on the adhesive tape. Using the same monarch for the Oe sampling, the attendee then tagged the hind wing, filled out the tagging form, and returned the monarch to a different hold cage.

The form(s), along with unused tags are then returned to Monarch Watch on 1 December, to be entered into a database. Taggers get their own tags and number so the database can be checked to see if their tagged monarch made it to Mexico. Tagging season for Texas starts August 20th and continues until December 1st. Oe sampling starts December 1st and continues until March 1st. Those who would like to tag Monarchs should go to www.MonarchWatch.org and order their tags.



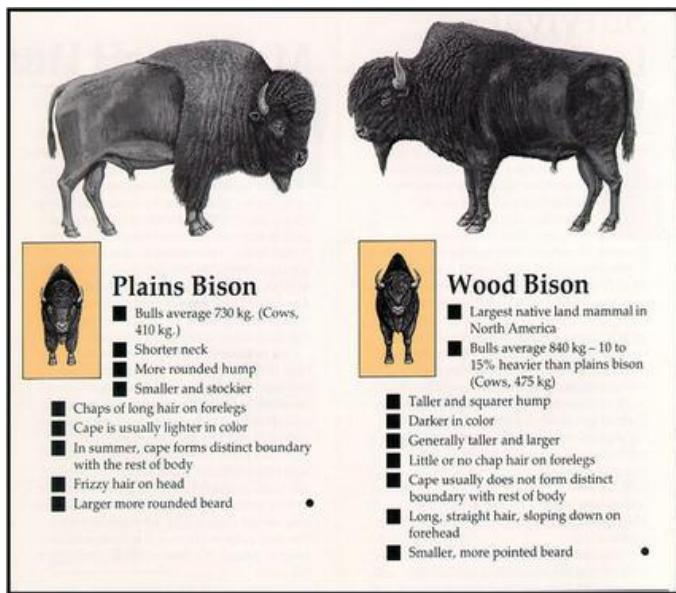
Those that would like to perform Monarch Oe sampling should go to www.monarchparasite.org or contact Vic Madamba at vik-n-rumi@att.net. We had 13 attending the workshop. I would like to thank Rita Smith for the hot beverages, all those who brought great snacks, and Scott Buckel for taking photos.

You Can't Roller Skate in a Buffalo Herd by Diane Humes

"You can't roller skate in a buffalo herd...", said songwriter Roger Miller, but you can hike inside the bison enclosure at Elk Island National Park outside Edmonton, Alberta, which I did on my recent trip to Canada. I followed their tracks along the trail, dodged their "patties", and noticed many wallows. Hiking deeper into the woods, I marveled at bison hair caught in tree branches, then surprised a bull not twenty feet off the trail - was it his hair? In any case, he was shy and took off, as did another. I, too, became quite shy when I came upon the herd - they could go where they liked, all twenty five

of them and their friends in the trees farther away, as far as I was concerned.

Buffalo, or bison - *Bison bison*, to be precise - are big. Weighing up to 2000 pounds, bison stand over six feet tall. Powerful and fast, they can run at 30 miles per hour, pivot on a dime, jump a six foot fence in a standing jump, or just run through the fence. Not particularly docile, in fact, unpredictable, which was on my mind on my up close and personal journey. Bison have never been truly domesticated or tamed.



Primarily grassland animals, as many as 60 million bison formerly ranged throughout North America, in two subspecies, wood bison (*Bison bison athabascae*) in the north and plains bison (*Bison bison bison*) as far south as Mexico, although it is not known for certain how many bison there were. Bison are grazers, even more than cattle, foraging on grasses and sedges; an adult consumes more than 30 pounds of grass (dry weight) each day. Mega-herds of millions of bison wandered all over North America, composed of groups of twenty to one hundred individuals, concentrated on the Great Plains.

Native Americans hunted bison; they depended on their hides, horns, bones, hooves, tails, meat for everything - food, spoons, tools, glue, blankets, tipi coverings, clothing and multitudinous other uses for all parts of the animal. Before they acquired horses, the tribes herded bison toward "buffalo jumps" - ingeniously forcing bison herds across the land, using various methods to funnel them to a location where they could be forced to stampede over a cliff. Hundreds of these sites exist, but the southernmost and earliest is near Langtry, Texas at Bonfire Shelter, which got its name because the massive pile of bones shows evidence of spontaneous combustion. A successful hunt required many people but could provide a lot of food. With horses, a hunt required only a few hunters and Native Americans took up more nomadic lifestyles, following the bison herds.

Early explorers in Texas recorded "vast herds of buffalo". In Bexar County in 1836, Pena wrote, "I advanced [from Bexar] to Cibolo Creek in order to reconnoiter the ground and during two hours in the afternoon, in the neighbourhood of the road, I saw hundreds of buffalo in herds." On the Gulf Coast, in 1838 a surveyor in Galveston County saw, "a herd of 30 buffalo," and in

1840, "Between Galveston Bay and the Brazos are great quantities of wild game; and on this bayou [Chocolate Bayou], buffaloes are found in considerable abundance."

Settlers seemed to have been insatiable hunters of bison and all other game; in 1843 Texas, Frederick Marryat, bemoaned that formerly, "the animals had not yet been scared out of the wilderness; water was found twice every day; the vine grew luxuriantly in the forests, and the caravans of the white men had not yet destroyed the patches of plums and nuts which grew wild in the prairies." By 1849 most of the buffalo herds and other game were gone from Texas. C.C. Cox travelled from Houston to El Paso "...without having seen an Indian or a Buffalo by the way." And C.D. Biggs, going from Dallas to El Paso, wrote that, "we did not see any Buffalo; and but very little game of any kind."

Bison surely seemed like an endless resource and were exterminated everywhere with the same zeal that caused the end of passenger pigeons, that logged the Singer Tract of last-remaining Ivory-billed Woodpecker habitat, "plowed down" the prairies, slaughtered whales, poached elephants, and is slurping the last drops of oil from the ground. Buffalo robes were popular commodities, but in 1870 tanners figured out how to make bison hides into industrial leather belts and footwear. After that the rush was on to mine the vast herds for cash money. At the height of the slaughter, 10,000 outfits - shooters, skinners, and scouts - fanned out over the prairies, looking for bison to shoot.



The railroads divided the herds from north to south, then east to west and made it cheap and easy to transport the meat and hides to market. To some folks, this had the double advantage of solving the "Indian problem" by killing off their livelihood, but plenty of Indian tribes also profited from the bison trade. In about 20 years the bison were gone; 1889 marked the last year for commercial shipment of bison hides anywhere in the U.S. In Texas, 1889 marked the last verified report of wild bison. The

total bison population in North America was then estimated to be just over 1000 animals. A few bison, orphan calves mostly, were saved from the slaughter by people who took them home and started private herds. A few roamed free in Yellowstone and some persisted in Canada. By 1902 the Yellowstone herd consisted of just 23 bison, while 700 bison existed in private herds.

After the live bison were gone, bone pickers scoured the prairies for the skeletons. High quality bones, burned to bone ash were used to make bone china, clarify sugar, vinegar and wine, and produce black pigments. Of course, cow bones work equally well, but bison bones cluttered up the fields and were there for the taking; income from selling bones probably helped many a prairie family get by.



The famous “mountain of bison skulls” photograph was taken in Detroit, Michigan at the railroad siding of the Michigan Carbon Works, which produced 650 tons of buffalo bone ash a year in its heyday, just one of the companies dealing in bison bones. Google maps shows Carbon Works on the Detroit map, on Carbon Street. Even more money was made by grinding the lesser quality bones for fertilizer - bone meal - which was sold back to farmers to replenish their soil. When the prairie was cleaned of bones, enterprising teams mined the ancient buffalo jump sites to alleviate the “bone crisis”. All told, perhaps 125 million skeletons were processed for industrial uses - more bison than ever lived at any one time.

You can't roller skate in a buffalo herd, but you might manage it with cows. Basically, through no planning or oversight, we have exchanged bison for cattle. The

ecology is similar, but not equal, more manageable - kinder to fences.



Today the North American bison population is close to 500,000 in public and private herds. Yellowstone National Park now has about 4,000 free-roaming plains bison and Wood Buffalo National Park in Canada has 10,000 free-roaming wood bison (and, of course, whooping cranes in the summer!). Texas has a herd in Caprock Canyons State Park and Trailway, almost 100 descendants of the Charles Goodknight herd of southern bison, free-ranging within the park.

Many ranchers raise bison instead of cattle for sale of meat. After all, a ranch costs money and bison may be more profitable and better for the ranch. Some let them roam and live as wild bison; others treat them more like cattle. Many Native American tribes are reintroducing bison to their lands. And there is an ambitious dream in Montana to create the American Prairie Reserve - a three million acre grass and wildlife preserve with free-ranging bison, black-footed ferrets, prairie dogs...all the critters and plants - an American Serengeti for all to visit and enjoy.

We shall never see the vast herds that lived on the Plains even 150 years ago, because “you can't roller skate in a buffalo herd”, but you can have hope for bison.

The [2013 Bison Festival](#), will be held on Saturday, September 28 at Caprock Canyon State Park. Come celebrate and support the Official Bison Herd of the State of Texas and their 1000-acre habitat!

The Festival starts at 10 a.m. with arts, crafts, food vendors, and other activities. The live music starts at 2 p.m. with many great bands, and Texas' own 9-time Grammy Award-winning, Asleep at the Wheel, closing the show!

Partnering for Safety

by Maureen Nolan-Wilde

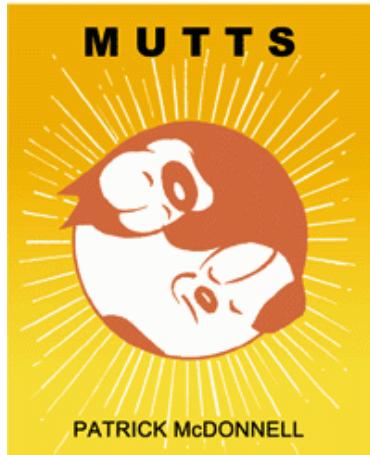
Dr. William Johnson, County Coordinator and County Horticulture Extension Agent expresses his thanks to both groups for their generosity:

"Having an AED in our office increases the safety of the Extension Office for volunteers (over 928) and the public who use this facility. We appreciate this generous donation! Thank you!"

Texas Adopt a Beach

by Maureen Nolan-Wilde

The annual Texas Adopt a Beach Clean-up is September 28th. This event is sponsored by the Texas General Land Office (GLO) and is the mother of the Ocean Conservancy's coastal cleanup that takes place all over the world in September. (We did it first here in Texas!) You may already know all about this effort so please pardon my reiterating something you already know. For more information see www.glo.texas.gov/adopt-a-beach/.



We Need Your Hours!

by Carolyn Miles

The month of September means that three quarters of 2013 has passed. So if you have not reported any hours this year or if it has been some time since your last report, now is the perfect time to get caught up on your hours. Please send them in now, to have them included in the September totals of our state report.

The end of the Texas Master Naturalist 2013 reporting year is coming fast. Last year we report a total of 28,593 hours and, as of August this year, we have only reported 19,058! Yikes!

As you can see, the chapter really needs your hours. Please make Jim Duron's job as Membership Director a little easier by reporting your hours timely. It will save Jim a lot of sleepless nights frantically entering your hours before the December chapter meeting. The current reporting form is on the chapter website, <http://gbamasternaturalist.org/>.

For those still in need of advanced training (AT) hours, you need sign up soon. No AT is planned for December. AT scheduled in October and November is listed on the back cover of *The Midden*.

Labeling Storm Drains on the Strand

by Charlene Bohanon

Several Master Naturalists and other volunteers participated in Galveston Bay Foundation's Storm Drain Stewards program on Saturday, August 17th. They marked a total of 170 storm drains across 30 blocks of historic downtown Galveston!

The volunteers also passed out fliers to local businesses, educational stickers and bookmarks to kids, and told visitors on the streets about the storm drain marking project and how they can help reduce stormwater pollution and keep Galveston Bay fishable and swimmable. Several Galveston residents were downtown in the morning and eagerly stopped on their bikes or in their cars to ask what the group was doing and expressed their gratitude for the volunteer project.

Thank you to all those who participated! To learn about other volunteer opportunities offered through Galveston Bay Foundation, please visit www.galvbay.org.



Here is a link to the photos we took that day:

<https://www.dropbox.com/sh/9upgfpf2ta2dih1/lV17KLNURg>

Teaching Ocean Processes!

by Julie Massey

The mad scientist arrived at the Extension Office, armed with tubes, frozen saltwater, and skeletons! As his unsuspecting victims gathered, he plotted and planned. He was going to teach them about the oceans in ways they never imagined.



Photos by Nathan Veatch

Sounds great doesn't it? Well, the Mad Scientist was played by Dr. Russ Miget, Texas Sea Grant Environmental Specialist and Floating Classroom Coordinator. The victims included Texas Sea Grant agents and Texas Master Naturalists.



Using Crisco, a globe and a lamp, Dr. Miget demonstrated how seasons work on our planet. Then, using ice, boxes, heat lamps, saltwater, and smoke sticks, global winds blew! Finally, the skeleton with its lungs expanded made the trip down the pressure chamber - demonstrating how pressure impacts humans! It was a great day to learn new hands-on techniques to teach about our oceans!

As the mad scientist headed back to his boat, he left behind the equipment. It will come in handy as we share these techniques with the Treasures of the Bay educators next summer. Many thanks to Dr. Miget and our hardy victims!

Guppies from Julie

Estuaries reach Lake Livingston!

In early August, saltwater reached the Texas Master Naturalists on Lake Livingston! Estuaries 101 came to town to connect members of the Piney Woods Lakes Chapter of Texas Master Naturalist with the Galveston Bay estuary.

Lake Livingston is on the Trinity River which flows into Galveston Bay. What happens on Lake Livingston impacts Galveston Bay.

Estuaries 101 is a NOAA curriculum designed to teach middle and high school students the importance of estuaries. Texas Sea Grant is piloting the program to train inland based Master Naturalists and educators about the values and functions of estuaries.



The Piney Woods Master Naturalists used Google Earth to locate and map estuarine habitats in Galveston Bay. They learned about the importance of freshwater inflows and non-point source pollution to the bay. As a part of the pilot project, these Master Naturalists will complete lessons and activities from the online curriculum.

In October, our chapter will help host the Piney Woods members as they will come to Galveston Bay for a field trip on the estuary! They will explore Galveston Island State Park, help restore habitat and have lots of fun! Texas Sea Grant hopes to expand Estuaries 101 to more inland Texas Master Naturalist chapters and educators! To learn more about Estuaries 101, check out the website at estuaries.noaa.gov.



The Midden

Published by Galveston Bay Area Chapter - Texas Master Naturalists.

For comments on this issue or to suggest content for future issues, please contact **Diane Humes** by e-mail at treimanhumes@earthlink.net.

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The Midden Deadline

for the next issue

November 3rd

If you have Advanced Training or Volunteer Opportunities, please submit information to Maureen Nolan-Wilde, mnwtiki@comcast.com.



Texas A&M AgriLife Extension programs serve people of all ages regardless of socioeconomic level, race, color, sex, religion, disability, or national origin. The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Court of Texas cooperating.

October and November Activities

ADVANCED TRAINING OPPORTUNITIES

Chapter Meeting - October 3rd

Prairies

Presenter: Dennis Jones with Park Interpreter - TPWD
6:30 Social, 7:00 Presentation, 8:00 business meeting
AgriLife Extension Office 1 Hour AT

1st Annual Campout - October 4-6th

AT varies by presentations attended. See chapter website for more information.
Location: Aransas National Wildlife Refuge

Presenters - Various

Register with Tawy Muehe tawymuehe@earthlink.net

Postponed

Fall Flowering Prairie Plants - October 22nd

9 am - Noon 3 hours AT

Location: Armand Bayou Nature Center

Presenters - Diane Humes and Dick Benoit

Register with Emmeline Dodd txdodd@aol.com

State Meeting - October 25-27th

AT varies by presentations attended. See State website for more information - <http://txmn.org/2013-state-meeting/>

Waterfowl Identification- November 16th

9am-Noon 3 hours AT

Location: Texas City Prairie Preserve

Presenters - Aaron Tjelmeland

Register with Emmeline Dodd txdodd@aol.com

**There is no AT planned for December!
Get your hours now!**

Ongoing

Galveston Island State Park

10 am at the Welcome Center

Every Saturday- Beach Explorations

Every Sunday- Bay Explorations

Tours 1 to 1 ½ hours long. Bring water and family.

Heritage Book Study Group

First Monday of every month. AgriLife Extension Office
10am-Noon 2 hours AT

Contact: Elsie Smith (409)945-4731

We are currently reading: *Wildness of the American Mind* by Roderick Nash

STEWARDSHIP OPPORTUNITIES

Ongoing Activities:

Tuesdays -

- Sheldon Lakes State Park, Contact: Tom Solomon crandr@sbcglobal.net
- Texas City Prairie Preserve, Contact: Jim Duron wishkad@yahoo.com

- Environmental Institute of Houston at UHCL,
Contact : Wendy Reistle reistle@uhcl.edu

Wednesdays - Wetland Restoration Team, Contact:
Marissa Sipocz m-sipocz@tamu.edu

Thursdays -

- Horseshoe Marsh Prairie, third Thursday of each month, 9 - Noon. Contact: Tom Solomon crandr@sbcglobal.net
- San Jacinto State Park, Contact: Tom Solomon crandr@sbcglobal.net

Fridays - Prairie Friday, ABNC, 8:30 - 11:30am,
Contact: Dick Benoit RBenoitTEX@aol.com

EDUCATION-OUTREACH VOLUNTEER OPPORTUNITIES

Bay & Island Adventures - Volunteers teach six in-class hands-on modules on a once a month basis in Dickinson and Galveston Schools. Presenters and helpers are needed for eleven 4th and 5th grade classes. Contact: Sara Snell snells@verizon.net.

Education and Outreach Committee - Lots of work to do and we can use your help developing a speakers bureau; responding to requests for exhibit booths, fieldtrip guides and presenters, planning Camp Wild and Treasures of the Bay; and developing a library of education-outreach materials. Contact Stennie Meadors Stenmead@aol.com

Partner and Associate Programs - Many organizations sponsor guided walks and education programs or need volunteers to man their nature center. Go to www.gbamasternaturalist.org click on "Volunteer Opportunities," then click on "Partners, Sponsors and Associates" for the list, then click on their website for information and contact.

BOARD AND COMMITTEE MEETINGS

Board Meetings - October 1st, November 7th
2-4 at the Extension Office

Committee Meetings

Communication - November 4th

9-Noon at Extension office

Advanced Training - October 21st, November 18th

10-Noon at Extension office

Education/Outreach - October 17th
10-Noon at Extension office

Stewardship - Meets quarterly. Next meeting to be determined