

The Midden

Spiders at Armand Bayou Nature Center by Diane Humes

Galveston Bay Area Chapter - Texas Master Naturalists

October 2016

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Next Chapter Meeting

October 6th

Coastal Ecosystem Sustainability

By
Dr. Huillin Gao and
Dr. Daniel Roelke
Texas A&M University
at Galveston

At Carbide Park

President's Corner by Maureen Nolan-Wilde, President 2016

Thanks to everyone who has donated time and energy to our volunteer efforts over the summer. I know that many of you continued your service in our prairies, parks and outdoor classrooms in the 90-plus degree heat for the benefit of our community.

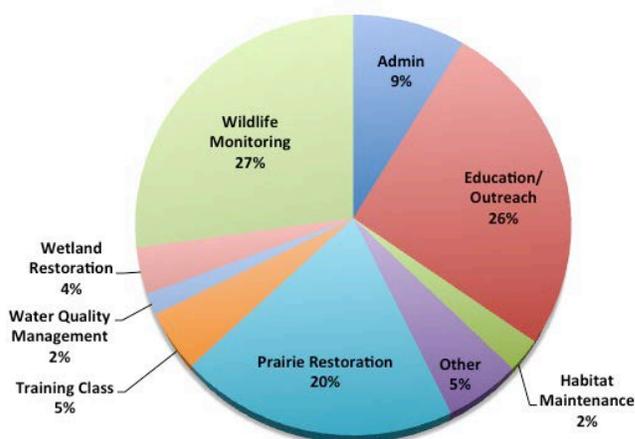


Photo by John Wright

One of the great things about our chapter is the variety of activities we are doing in Galveston County. One activity is the monofilament fishing line recycling program working with Agrilife Extension agent John O'Connell. Earlier this year the board accepted a grant from the Kempner Fund for building, distributing, and tracking of fishing line recycling tubes in Galveston County. John Wright volunteered to lead this work; he and his team built the tubes and are working with various agencies to place them in strategic areas. An online system was also created so we can track where these recycling bins are located.

This summer our chapter celebrates the one-year anniversary of implementation of our Volunteer Management System (VMS). This system tracks our hours of service and advanced training; the data is being used by the board and various teams to help plan. The pie chart shows 2016 year to date volunteer service by category.

Chapter Opportunities Distribution (%) - YTD



Don't forget the Texas Master Naturalist 17th Annual Meeting this month. It is not too late to sign up for a great weekend of advanced training and networking with chapter members from all over the state.

I am looking forward to seeing you on the beach, at the bay, in the prairie, or the classroom.

Be safe.

Prairie Ponderings: Indian Plantain Indicates a Healthy Habitat by Lana Berkowitz

With just a little attention to the prairies around the extension office, Johnson Space Center and many other locations in our area, you will see Indian plantain. If you spot Indian plantain, *Arnoglossum plantagineum*, you have found a high quality habitat, because its presence indicates an undisturbed prairie. A prairie stalwart that is easily overlooked, Indian plantain is a member of a small genus of sunflowers (Asteraceae) comprising about eight species endemic to eastern North America.



Photo by Lana Berkowitz

Arnoglossum plantagineum is distributed in wet prairies, pastures, open woodlands and boggy situations throughout the eastern United States and Ontario," according to Dr. David J. Rosen of Lee College, who specializes in prairie research. "In southeast Texas it is often abundant and characteristic of the flora of coastal prairie where it provides cover and food for insects and other wildlife," Rosen said.

"Indian plantain is a spectacular, strange plant," said Robert J. O'Kennon, Botanical Research Institute of Texas resident research associate, who is also involved with the Native Prairie Association of Texas and Natural Area Preservation Association. "When it blooms, you can say: 'Oh, look, an *Arnoglossum*,'" O'Kennon said. "The rest of the year it is completely hidden in the grasses. Unless you know what the leaves at the base look like, you may only notice Indian plantain in the summer when the tall flowers wave above other prairie plants," O'Kennon said. What you are looking for is a perennial that likes a wet prairie, has a tap root and has glossy leaves at the plant base. The stout central stem is light green. The white blooms can be seen June through August on plants 3 to 6 feet tall.

"When it is blooming, Indian plantain is useful because it is easily spotted from the road and can point you in the direction of a pocket prairie where lots of native seed can be sourced," said Daniel Walton, Wetland Restoration Team program assistant. Walton is collecting Indian plantain to add to the diversity of the restoration project at Sheldon Lake State Park & Learning Center. "The flower isn't that remarkable to look at compared to other tall flowering plants on a prairie. But the leaves along the stem are quite attractive and give it character," Walton said.

"The leaves of the Indian plantain plant look a lot like those of the Texas coneflower and the Spring plantain," Walton said. "The difference is in the venation. Texas coneflower has more longitudinal venation, where the Spring and Indian plantain have what almost looks like parallel nerves where they all begin from the same point at the base of the leaf and come back together towards the apex. Texas coneflower is also going to be found on drier sites compared to the other two," he said.



Photo by Lana Berkowitz

Indian plantain blooms in the later summer to fall and its near look-alike, the Spring plantain, blooms in the spring to midsummer. "So it's good to have these two similar plants blooming pretty much for the length of the growing season on your prairie for pollinators," Walton said.

Next time you are driving Saturn Lane, after you have admired the Saturn 5 rocket and the longhorn cattle, watch for the several acres of prairie now blooming with Indian plantain. With any luck, our prairie team will collect seeds before the mowers harvest the area for hay.

Wetland Wanderings: Last Gator Night 2016 by Diane Humes

Imagine a moonlight cruise, searching for an apex predator, possibly approaching thirteen feet in length and five hundred pounds. Safe on a boat, you are exploring for alligators in the water and on the riverbank; they know you are there, but you can only see the red of their eyes reflecting back from the flashlight beam. Led by Mark Kramer, we are exploring Armand Bayou in the pontoon

boat on August 20, 2016 - the last and best chance to see alligators for this year.

American alligators, *Alligator mississippiensis*, living in freshwater streams and lakes throughout the southern United States, were nearly extinct in the 1960's from over-hunting and loss of habitat. Afforded protection in

1967 by the Endangered Species Act, and their habitat better protected by the Clean Water Act, alligator populations are now healthy; the species is no longer endangered. Adult alligators have no natural enemies and most any animal could be their prey. Although they do not usually bother people out of the water, as a practical matter, any area of freshwater should be considered potential alligator habitat; act accordingly and be careful.

Alligators are closely related to crocodiles and birds and hatch their young from eggs. Nesting season begins in June and hatchlings usually emerge from the nest by Labor Day; we were disappointed not to see babies on our exploration. Should you encounter any babies, please remember that mother alligators will vigorously defend their nests and babies, for up to a year after hatching, so keep a safe distance!

As with other predators, alligators provide unexpected benefits to the habitat. For example, at a heron rookery, a nesting alligator provides protection for herons and egrets nesting above them. Any raccoon or snake foolish enough to try to circumvent the alligator to get at the bird egg, meets a sad end. So, the heron rookery at Armand

Bayou Nature Center has established and thrived ever since the alligators moved in.



Photo courtesy of ABNC

These fascinating interactions can be explored at Armand Bayou Nature Center. Consider taking a tour or joining the volunteer team to learn more. How many gators did we see? More than we would have thought possible!

Beach Patrol: From Summer to Fall by Steve Alexander

By now, our beaches are less populated, with visitors now home tending to the everyday tasks of their lives, and sea turtle patrollers absent after completing another nesting season.

But not too long ago visitors and patrollers covered our beaches. Tourists came as they do every summer, filling all beaches, but especially the new beach beyond 61st Street. And although sea turtle patrollers logged many hours this summer, they didn't find a single nest on Galveston Island, and only a handful on Bolivar Peninsula and Surfside.

Sea turtle nest numbers along the entire Texas coast were good, with 185 Kemp's ridley nests discovered (that number is now officially 186 - a late nest was discovered on San Jose Island when hatchlings were seen making a

break for the surf). Hats off to all patrollers, including many members of our group. Thanks for your hard work in the heat of summer!

So, now our beaches are less trafficked - the perfect time to do a beach reconstruction project. And another massive project is planned, this one a \$19.6 million project to replenish 1 million cubic yards of sand from 12th to 61st streets. This is another good bit of news, because Galveston depends on tourists, and tourists come for the beach and the beach depends on sand.

Lastly, I want to mention another bit of news that points to the fact that global warming is real. According to a recent report by the EPA, Galveston's sea level rose more than 8 inches between 1960 and 2015. Global sea level rise now averages over one inch per decade.

Monarch Butterfly OE Parasite Sampling & Tagging AT by Madeleine K. Barnes

What do you know about the monarch butterfly migration and the decreasing numbers of these amazing insects? Have you wanted to help monitor these tough long distance flyers and track their migration? In an effort to learn more about the Texas state insect, 20 master naturalists participated in a workshop at the

Environmental Institute of Houston at UHCL presented by Vic Madamba on August 13, 2016. Vic discussed the life history of these special insects and reasons for tagging them, then did a "hands on" tagging demonstration. Participants formed teams to tag a real

monarch and collect and record data while getting comfortable with the instructions and butterflies.



Photo by Phyllis Koenig

The numbered tags are very small and are applied to the underside of the right back wing. These do not interfere with flight when they are applied well. Tagging kits and additional information are available for purchase from the website: www.monarchwatch.org. The data that is collected and submitted is a special project of the University of Kansas to help researchers learn more about migration, the size of the overwintering population, and monarch mortality during the migration.

Vic described habitat loss affecting the decline of the monarch butterfly population and gave information about the *Ophryocystis elektroscirrha* (OE) parasite and its devastating effects. The parasite is deposited on any milkweed host plant, native or non-native, by an infected monarch and then is ingested by monarch caterpillars. Adults may also pass on parasites during mating.

Only monarch, queen, and soldier butterflies are affected by this particular parasite. Vic demonstrated protocols for collection of OE samples and submittal to the Odum School of Ecology, University of Georgia, to test for this parasite through microscope analysis.

Citizen scientist volunteers assist by collecting samples from monarch butterflies for the MonarchHealth project,

www.monarchparasites.org, to track the spread of this parasite in North America. AT participant teams replicated this sampling using clear stickers to collect scales and possible parasites, pressing the stickers across a monarch's abdomen, applying it to a card, and recording the data for submittal. Vic also demonstrated how to weigh and measure a monarch to provide additional data.

During the presentation we learned about monarch biology, habitat, predators, migration, food and nectar, and local milkweeds. Milkweed plants are vital to monarchs; they shelter the eggs and are the sole food source for caterpillars. Green Milkweed, *Asclepias viridis*, is our most common species. A listing of Texas milkweed species with pictures can be found at Houston's Native Plant Society website

<http://npsot.org/wp/houston/monarchs-milkweeds/>. The monarch butterflies used in this training were not harmed during this session and were released afterwards.

Reminder for those of you with non-native tropical milkweed, *Asclepias curassavica*: be sure to cut them back to within 3-4 inches of the ground on October 1st to prevent additional parasite contamination and to keep the migration going (from the monarch parasite website).

If you want to participate in OE testing and/or tagging, just go to the websites shown above to sign up and get instructions. Monarch@uga.edu is an email address for volunteer requests to tag butterflies. One source for equipment is www.educationalsource.com. Questions: contact Vic Madamba [WaveRider ru2@liberteau.us](mailto:WaveRider_ru2@liberteau.us)

Monarch butterfly tagging timeframes - August 20th - December 1st

Monarch OE testing timeframes - December 1st - April 1st

If you do not want to be part of the tagging or testing projects, you can still help by reporting monarch butterfly sightings to Journey North at www.learner.org/jnorth. This was another great AT and volunteer opportunity.

Our Summer Sea Turtle Adventure by Maureen Nolan-Wilde

In early August, we took part in a sea turtle adventure in Florida. Our hopes were high, but we had no idea that this would turn into an experience of a lifetime.

Over the past three years, we have walked hundreds of miles monitoring Galveston's beaches in the hope of finding a Kemp's ridley nest - or even tracks. In Florida, however, we were able to walk out of our hotel and find tracks and nests belonging to both loggerhead and green sea turtles up and down the pristine beaches.

On our first evening there, we went exploring with our red flashlights (red does not bother sea turtles) and had only walked about 250 feet when we witnessed a green sea turtle coming in from the ocean to dig a nest. She was poetry in motion as her flippers threw large quantities of sand in the air to make way for her clutch of eggs.

The next morning, we found out just how tough it is to be a baby loggerhead. We looked down on the sand and saw babies everywhere around us. The crawl from their

Photo by Alan Wilde



nest in the dunes was like an obstacle course, as they had to avoid ghost crabs, birds, footprints, holes and humans taking pictures, watching or trying to do whatever they could to make the journey safe. The next

night we saw a few baby turtles making their way down the beach and were able to locate the nest from which they came.

To be quite truthful, sea turtle monitoring on the Atlantic side is quite a joy but also a bit stressful as you follow your young charges down to the ocean, willing them to escape from deep indentations in the sand and rescuing them from ever-present ghost crabs.

When asked about the success rate of nesting on Florida beaches, locals point out the cleanliness of the beaches, respectful citizens and the impact of Turtle Excluder Devices (TEDs) in reducing the number of turtles killed by fishing.

All in all, it was an amazing time; we are already planning our return trip next year.

Educator Workshop at EIH by Sara Snell

The Education Outreach Committee sponsored a Nature Journaling workshop at Environmental Institute of Houston (EIH) on July 20. There were 16 educators from the Clear Creek School District ranging from K-7th grades. Our own Suzanne Becker, Sharon Duray, and Rhonda Marshall conducted the workshop, and, for those of you who attended the workshop as a chapter sponsored AT session, you know how awesome this workshop is for attendees. The educators agreed!

The educators were able to take away many ideas on how to incorporate journaling into their curriculum for use in the classroom. The educators also received a goodie bag with supplies to use so they could practice what they learned this summer and be ready for school to start.

Teachers were asked to list their expectations for this workshop which are outlined below:

- "Make journaling meaningful and a more authentic experience"
- "For journaling to have endurance and be sustainable"
- "For it to be fun - if enjoyable, kids more likely to continue to journal"

- "To learn more"
- "To have a way to get kids outdoors more"



Photo by Sara Snell

Needless to say, at the end of the day we met those expectations. The teachers left full of enthusiasm and we left knowing GBAC again provided an inspiring training experience.

Zika: The Natural History of a Virus by Diane Humes

Most of what we know about viruses, those small, infectious particles visible only with an electron microscope, has been learned within our own lifetimes. On the edge of being "alive", a virus generally consists of a strand of DNA or RNA, enclosed within a protein

capsule, and a lipid envelope. It can infect any type of life form - animal, plant, bacterium - and requires the host's cell machinery for its reproduction. There are millions of viruses, but only about 5,000 have been studied in detail. Viruses may have evolved with the beginning of life; their

origins are a source of great debate. Even the word "*virus*", is rooted in antiquity, coming to us from Latin, through Greek and Sanskrit, meaning "poison or other noxious liquids".

The Zika virus was discovered in a rhesus monkey in 1947 at the Yellow Fever Research Institute in Entebbe, Uganda - now called the Uganda Virus Research Institute. Named for the forest in which it was found, Zika virus is an arbovirus, a virus transmitted by an arthropod vector - mostly, a mosquito or tick - as are chikungunya, West Nile virus, dengue, and yellow fever. Given the high levels of immunity found within the human populations of Africa and Asia during subsequent studies of the virus, Zika is thought to have co-existed with humans in tropical equatorial locations for a very long time.

Zika is closely related to the yellow fever virus, belonging to the genus *Flavivirus*, which includes West Nile virus, dengue virus, and others. Zika virus had not been known to cause significant illness in humans; its symptoms, if any, resemble mild dengue, including mild headache, malaise, fever, joint pains, conjunctivitis, and/or skin rash. Only 14 known cases of illness occurred for the next sixty years.

In 2007, Zika suddenly appeared on Yap in Pacific Micronesia. Doctors reported 49 confirmed and 59 probable cases of Zika illness within a two-month period, with patients reporting symptoms including rash, conjunctivitis, and joint pain, distinctly different from dengue fever; there were no reported hospitalizations. This was the first instance of Zika outside of Asia or Africa. The outbreak subsided and the conclusion was that an infected traveler or mosquito had brought the virus, possibly from the Philippines.

Another epidemic of Zika struck French Polynesia - think Tahiti and Bora Bora - in 2013-2014, at the same time as dengue fever. Of the 8,723 reported cases of Zika in this outbreak, doctors reported 74 people with neurological complications associated with the illness, including 42 cases of Guillain-Barré syndrome. After the outbreak, came reports of unusual central nervous system malformations in infants and fetuses, including microcephaly.

When Zika began spreading in Brazil in 2015, with reports of clusters of infant microcephaly, the World Health Organization declared a Public Health Emergency of International Concern, out of an abundance of caution for human safety, until more was known about the Zika virus. Zika has followed the same route around the world as dengue, West Nile, and chikungunya; these illnesses are spread by the same vectors and can occur simultaneously.

There are two distinct strains of Zika - African and Asian. Researchers believe that all the recent outbreaks of Zika

have originated from Asia. They show that Zika actually arrived in Brazil from French Polynesia during the 2013 FIFA Confederations Cup soccer prelude to the World Cup 2014, when Tahiti's team played other teams in a few Brazilian cities, doubtless attended by tourists from all sides. By now, Zika has circled the globe, arriving in the Cape Verde Islands nearly where it began, aided by globalization, air travel, and "spillover" between people and animal diseases.

Although Zika can be passed sexually via semen and *in utero* from mother to fetus, the primary method of Zika transmission to humans is by mosquitoes. The most important type in our area is the yellow fever mosquito, *Aedes aegypti*. Although this mosquito originated in Africa, it now resides throughout the warm regions of the world. The female must have a meal of blood to mature her eggs and gets it from you; males do not bite humans. These mosquitoes most commonly feed at dusk and dawn and breed in areas of stagnant water. Adults live from two to four weeks, but the eggs can remain viable up to a year in cold or dry conditions; they hatch quickly when wet and warm.

Our other important vector of Zika, the Asian tiger mosquito, *Aedes albopictus*, arrived in the U.S. at the Port of Houston in 1985 in a shipment of used tires and has spread to 32 states. In 1966, this mosquito was found only in Asia; it seems to have been shipped nearly around the world. This mosquito is also called the forest day mosquito; it bites during the daytime, as well as dawn and dusk. It bites humans and other mammal species, plus birds, making it a spreader of disease between species, as with West Nile virus. It can withstand colder temperatures than *Aedes aegypti* and is considered one of the worst invasive species. Both of these mosquitoes can transmit Zika, dengue, and chikungunya; neither flies very far from where it was hatched.

What can we learn from this history? We have a virus that has resided quietly within and alongside human populations for many years with seemingly little effect. Has this virus mutated? What else has changed? Zika is difficult to diagnose, because its symptoms and antibodies are similar to dengue. So, it may be incorrectly reported. The reported neurological effects and microcephaly may have other causes than Zika - exposure to drugs, alcohol, toxic chemicals and rubella, or chicken pox viruses; the causal mechanism has not yet been deduced.

In addition, we have trans-global shipment of people and goods, for better or worse, a homogenization of the planet, and the introduction of at least 4 viruses and the vectors to spread them to whole populations of people with no immunity. We are a long ways from a vaccine and most of us will have to get infected to acquire immunity. In the meantime, the best defenses against

mosquito-borne illnesses are already in our possession - window screens, air conditioners, and insect repellent.

The *Aedes aegypti* mosquito adapted to living with people thousands of years ago when villagers began storing water in jars inside their houses. Well, the best defense is a good offense; pick up trash and empty those containers holding standing water.

In his book, *Spillover: Animal Infections and the Next Human Pandemic*, a masterful detective story of zoonotic diseases including West Nile virus, dengue, and chikungunya - not Zika - David Quammen points out that we are all part of nature, not separable from it. He believes that we humans may be smart enough to change our behavior, which could make all the difference. Put this book on your reading list.

John Muir - A Voice for Nature by Verva Densmore

"When I was a boy in Scotland I was fond of everything that was wild, and all my life I've been growing fonder and fonder of wild places and wild creatures."

This first line from John Muir's autobiography *The Story of My Boyhood and Youth* helps us understand his passion for nature that inspired Muir to argue for the preservation of wild places, an argument that influenced some of the most powerful people of his day to fight for a cause that eventually saved areas that are now National Parks. On this 100-year anniversary of the National Park Service, it seems a good time to reflect on how one man contributed to this history.

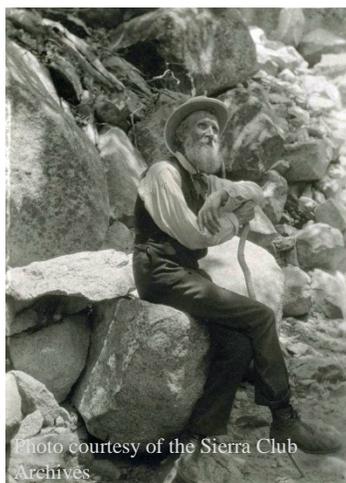


Photo courtesy of the Sierra Club Archives

John Muir has been described as perhaps the country's most famous and influential conservationist/naturalist and is often called "The Father of Our National Park System".

One ranger at the John Muir National Historic Site in Martinez, California told me that he believed if it weren't for John Muir, we probably would not have Yosemite National Park. Muir was

also personally involved in preserving these areas: Petrified Forest, Grand Canyon, Sequoia Kings Canyon and Mt. Rainier.

His simple desk is still by the window in his "scribble den" and crumpled papers litter the floor of the room where it is easy to conjure his presence sitting there writing some of the 300 articles and 10 books that brought the land and animals alive for people who might never see them, influencing many to support the protection of these areas.

A National Park brochure about Muir describes him as "a writer, a lecturer, a geologist, a botanist, a glaciologist,

an explorer, a school teacher, an inventor, a fruit rancher, a husband, and a father." Many call him a visionary. He was the co-founder of The Sierra Club in 1892 and served as its president until his death in 1914. His image was chosen for California's commemorative quarter because, as then Governor Arnold Schwarzenegger said, "Muir lit the torch of conservation in our state. He has inspired generations of Californians to preserve our natural beauty."

Too much has been written about and by John Muir to cover in a short article – there have been over 723,000 newspaper articles and 4,771 books about him – but his work to save Yosemite Valley provides a way to appreciate his dedication to preservation and his love of nature and to understand the persuasive man who, with his writing, his talking and his perseverance, moved thousands to support conservation in an era of rapid industrialization.

For over 10 years Muir talked, wrote, lobbied and pleaded to have Yosemite Valley turned over to the federal government and included in the existing Yosemite National Park that surrounded it, but to no avail. Then, in 1903, one of the most famous of his friendships began when President Theodore Roosevelt accompanied Muir into Yosemite Valley and camped with him alone at the base of a giant Sequoia overlooking magnificent waterfalls.



Photo by Verva Densmore

A PBS article about John Muir states “Muir’s three-night camping trip with President Theodore Roosevelt in 1903 could be considered the most significant camping trip in conservation history.” Muir and Roosevelt, virtually alone, sat around the campfire and talked. At the end of those 3-days, Roosevelt publicly spoke for the first time about preserving the valley.

Later Roosevelt wrote about Muir saying “not only are his books delightful, not only is he the author to whom all men turn when they think of the Sierras and northern glaciers, and the giant trees of the California slope, but he was also - what few nature lovers are - a man able to influence contemporary thought and action on the subjects to which he had devoted his life”.

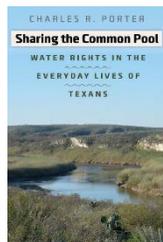
Three years after this camping trip and after more devoted lobbying and writing by Muir, Yosemite Valley was incorporated into Yosemite National Park. By 1916, when the National Park Service was established as a new federal bureau in the Department of the Interior, there were 14 National Parks. Today we enjoy 59 National Parks.

We, as master naturalists, stand on the shoulders of such greats as John Muir and the many conservationists that he inspired. Like Muir, I am nourished by my time in nature, whether on the beach, in the mountains or on the prairie. I want to work to preserve these open spaces for generations to come.

As John Muir said, “In every walk with nature one receives far more than he seeks.”

Review of *Sharing the Common Pool, Water Rights in the Everyday Lives of Texans* by Madeleine K. Barnes

The Heritage Book Study read another book about water in Texas; the current selection focuses on who owns the water in Texas - the major issue that Charles R. Porter explores in his recent (2014) book. He is an author, speaker, full time visiting professor at St. Edward’s University, and water rights and real estate expert, testifying in over 486 court and arbitration cases since 1987. He previously wrote a book about early water development in the San Antonio area.



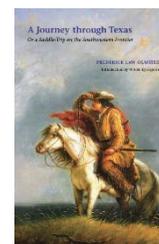
Mr. Porter explains Texas water rights in simple terms, telling us who has them and the positive and negative implications of this ownership. If everyone - municipalities, businesses, property owners, farmers/ranchers, and others - were to line up to claim their water rights at the same time, there would not be enough to go around. The water supply is ultimately dependent upon variable weather conditions, including drought.

The numerous sources of water - ponds or tanks, streams, lakes/reservoirs, rivers, and underground springs and aquifers - are currently in use to provide water for people, agriculture, livestock, and wildlife. If you own property and there is water on it, is it yours to use or sell in whatever way that you choose? The answer depends: is the water surface water or groundwater? Does it flow off your property or does it sit, not connected to any other water source? The right to the use of the water is legally defined based on these characteristics and any previous legal determinations.

Texas water law evolved from Spanish rule and, later, English and Republic law. The definitions are easy to understand; however, the laws, permits, and jurisdictions become very complicated. Conflicts occur between users of the water - agriculture, industry, cities, and the environment. A list of significant court cases and government agencies is provided in this book, as well as suggestions for future water policy considerations. For instance, human population growth in our state along with any climate change will add to the ongoing pressure on our water resources, as will water use for fracking and whether this is an environmental hazard.

If you would like more information about who controls or who has water rights, you really need to read, *Sharing the Common Pool, Water Rights in the Everyday Lives of Texans*. Pairing this book with another previous reading selection, *Water in Texas*, would give you the entire picture of where water is located in Texas, who has oversight over it, and who can use it and how much they can use.

Our current reading selection for October 3rd is pages 172-315, of *A Journey through Texas* by Frederick Law Olmsted. We will meet on November 7th to discuss pages 316-457. We welcome your participation for two hours on the first Monday of each month starting at 10:00 a.m. at the Agrilife Extension office. We look forward to seeing you. Please let us know if you have read any good naturalist books lately! Happy trails!



Orb-weavers Near You by Madeleine K. Barnes

“If you want to live and thrive, let the spider run alive.” - American Quaker Saying

“The next time you see a spider web, please, pause and look a little closer. You’ll be seeing one of the most high-performance materials known to man.” - Cheryl Hayashi

Maybe you have noticed that the spider population in our area has rebounded from the drought. During those dry years, many spiders and insects were hard to find. If you go for a walk in the trees around our area and also in your backyard, you may have seen some spiders or at the very least spider webs. There are almost 900 species of spiders or arachnids in Texas. The big spiders that I am seeing in the forests and in my backyard are orb-weaver spiders, members of the spider family Araneidae. They are most visible in the summer and fall.



Photo courtesy of Wikipedia

Araneidae is the third largest family of spiders in the world. Orb-weavers got their name due to circular or “orb” shaped webs and are found in gardens, fields/prairies, and forests. Araneids have eight similar eyes, hairy or spiny legs, and do not have organs that make noise. These are outside spiders that spin their webs wherever there are insects to eat and places

where they can find attachment points for webs. Common spots are under porch roofs, near outside lights, between trees, along fences, in grasses/bushes, or even in playground equipment.

These garden spiders rarely venture inside homes, though occasionally one might come inside on a potted plant. They are much more common in humid habitats than in drier ones which explains why we did not see them during the drought. To make identification more challenging, orb-weavers come in a wide range of colors, shapes and sizes. They can have stripes, blotches or circles in shades of brown, gray, white or black. Some species have bright patterns in yellow, red, pink or even blue. Other unusual species of orb-weaver spiders resemble spiky crabs, and a few have triangular bodies. Orb-weavers have poor vision (even with all those eyes), but are very sensitive to web movement and wind. They are not considered aggressive, and will usually run or fall off the web if disturbed.

The orb web is very distinctive and an easy way to identify this classification of spider. A framework of nonsticky silk (protein fiber) is built up before the spider adds a final spiral of silk covered in sticky droplets that starts in the middle and goes round and round to meet the outer edge. When any prey (such as an insect) get caught, the spider rushes over, bites the prey and begins spinning and wrapping the insect in webbing to contain it while it dies. Many species will build a new web every day or every night. This keeps the web clean of debris like leaves, twigs and dust. Many recycle it by eating the web and spinning it back later. Some nighttime species will take it down and then hide out during the day.

You may have noticed that some of the webs have a crisscross band of silk in the center that looks like a white zipper. This is called a stabilimentum and can be found in some other types of spider webs also. This special band of silk is thought to act as a marker to warn birds away from the web or as camouflage for the spider as it sits in the center of the web. Researchers have recently determined that this stabilimentum actually decreases the visibility of the silk to insect prey so they do not see it and are then caught in the web. The orb-weaver spiders produce silk strands that have exceptional strength to withstand the impact of flying prey. This spider silk is unique as it combines high tensile strength and extensibility that enables it to absorb a lot of energy, even stretching before finally breaking.

Orb-weavers eat insects, including pesky mosquitoes, and other arthropods, but are also known to eat small frogs and hummingbirds captured in their webs. Predators of orb weavers include predatory wasps, parasitic wasps, other spiders (equal opportunity here), insect-eating birds, and beetles who eat the spider eggs.

The most commonly noticed orb-weaver is the female as she sits on her web while feeding and waiting for the males to come along. The males do not spin webs and their only job is reproduction. There is a difference in size; in some species of orb-weavers, females are more than nine times larger than males. The smaller size of the males may actually assist in mating, as they trigger less pressure on the web and, thus, can carefully approach and mate with the females without getting eaten (sexual cannibalism).

The female lays 100-300 eggs inside an egg sac that she spins. She attaches this sac underneath leaves or overhanging structures. Both the male and female die after mating/reproducing. The baby spiders hatch within a few weeks, but stay inside their egg sac until winter ends. Once the tiny spiders emerge, they either remain

nearby or produce short silk strands that catch the wind, dispersing to new areas.

While orb-weaver spiders can bite and are venomous to their prey, their bite is not very painful to humans,

comparable to a bee sting, and their venom is not strong enough to harm people or pets. We do benefit from the insect pest control that these orb-weavers provide. So let orb-weaver spiders “run” outdoors and continue to “thrive”.

National Weather Service AT by Chuck Snyder

One of the first questions many/most of us ask when first waking up in the morning is, “What’s the weather forecast for today?” We turn to our various communications methods (TV, radio, newspaper, smartphone apps) and find a comprehensive projection of what the day has in store. What’s the source of all this data?

On August 24th, we visited the National Weather Service Office in League City to see and hear first-hand how our forecasts are derived, with special - and timely - emphasis on hurricanes and other major weather events.

Our primary host for the session was Dan Reilly, Warning Coordination Meteorologist for the Houston/Galveston office. Dan has broad experience with the NWS, having served in parts of the country as disparate as Virginia and Great Falls, Montana. He began his assignment in Houston in July 2008, just in time to be part of the response team for Hurricane Ike.

Dan provided us with a primer/refresher on weather basics, including such topics as high and low pressure systems, warm and cold fronts, cloud types, seasonal temperature patterns, and winds.

He then elaborated on tropical storms and hurricanes, explaining how they form and the many factors that determine their path, magnitude and impacts. Dan raised a few eyebrows in the group when he posited that many late-season Atlantic hurricanes trace their origin to the hot, dry winds of the Sahara Desert. These winds flow predominately from east to west, crossing the western coast of Africa just north of the equator. Once they’re out over the open waters, they may begin to take up moisture and become a disturbance. As the disturbance progresses to the west, propelled by the trade winds, it may continue to add moisture through convection, ultimately developing the signature counterclockwise rotation of tropical weather systems in the northern hemisphere.

As it continues on its journey, the new tropical disturbance may encounter obstacles to its continued formation. It may be steered out of the trade winds by countervailing forces such as high-pressure systems or strong westerly winds. If it survives these impediments, it

may continue to move to the west, gaining strength as it goes. As its winds at the surface increase, it will be classified first as a tropical depression, then a tropical storm, and, finally a hurricane.

The primary “fuel” for a tropical storm’s development is warm water, 80 degrees F or higher. The hurricane season coincides with the presence of warm water in the tropical and subtropical regions of the world.



We also learned about the tools of the trade, which involve weather data collection and a variety of computer models for developing short-term forecasts. Then we were shown those tools in action, courtesy of Forecaster Nikki Hathaway, who demonstrated the various data sources she uses to develop and fine-tune the forecasts, watches, and warnings that emanate from the center. Nikki enthusiastically fielded the many questions we put forward.

Finally, we were given a tour of the Galveston County Emergency Operations Center Command Post, which is wisely located in the same space as the National Weather Service. As the EOC has a strong focus on weather emergencies, the co-location with the NWS has significant synergies.

We sincerely appreciated the opportunity to visit the National Weather Service and learn about their operations - and their 24/7 vigilance.

October and November Activities

ADVANCED TRAINING OPPORTUNITIES

Chapter Meeting - October 6th; Coastal Ecosystem Sustainability
Presenters: Dr. Huillin Gao and Dr. Daniel Roelke, Texas A&M Galveston
6:30 Social, 7:00 Meeting, 7:30 Speaker
AgriLife Extension Office; 1 AT hour

Texas City Prairie Preserve Hayride - October 19th
9 am-noon 3 hours AT; Limit 30
Location: Texas City Prairie Preserve
Presenters - Tim O'Connell, Jim Duron
Register with Emmeline Dodd txdodd@aol.com

Reptiles and Amphibians - November 2nd
9:30 am-noon 2.5 hours AT Limit: 25
Location: Eddie V. Gray Wetland Center, Baytown
Presenters - Tracey Prothro
Register with Emmeline Dodd txdodd@aol.com

Ongoing

Galveston Island State Park
10 a.m. 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) 392-7003
See Pg. 8 for meeting dates and books.

STEWARDSHIP OPPORTUNITIES

Ongoing Activities:

Mondays - Galveston Island State Park, Contact: Chatt Smith chattsmith@gmail.com

Tuesdays -

- Sheldon Lakes State Park, Contact: Tom Solomon crandtr@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 -

- Stormwater Wetland Team, every Thursday, 9 - Noon. Contact: Mary Carol Edwards mary.edwards@agnet.tamu.edu
- San Jacinto State Park, Contact: Jim Duron wishkad@yahoo.com

Fridays - Prairie Friday, ABNC, 8:30 - 11:30am, Contact: Chatt Smith chattsmith@gmail.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 snellsw@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 Sara Snell snellsw@verizon.net

Partner and Associate Programs - Many organizations sponsor guided walks and education programs or need volunteers to staff their nature center. Go to <http://txmn.org/gbmn/partners/> for the list, then click on the link to the organization's website.

BOARD AND COMMITTEE MEETINGS

(At Extension Office monthly unless specified)

Board Meetings - First Tuesday, 2-4p.m.

Committee Meetings

Communication - October 31, 9-Noon
Advanced Training - Third Monday, 10-Noon
Education/Outreach - Third Tuesday, 10 to 11:30 a.m.
Stewardship - Meets quarterly.

Cliff Muehe Reaches 5,000 Hours

by Maureen Nolan-Wilde

Congratulations to Cliff Muehe, Class of 2001, on achieving the 5,000 hours of volunteer service (equal to 2 ½ years of full-time employment or \$117,000). Cliff and his wife Tawy (also a 5,000 hour member) were members of our first class. Cliff is still actively volunteering at FeatherFest and at our many initiatives at Galveston Island State Park.



The Midden

Published bimonthly by the Galveston Bay Area Chapter - Texas Master Naturalists. The purpose of *The Midden* is to inform, communicate and educate chapter members and the community. If you have an article that contributes to this purpose or want to join the team, please contact Diane Humes, treimanhumes@earthlink.net

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The Midden is posted on the GBAC-TMN chapter website: www.gbamasternaturalist.org two weeks prior to chapter meetings. Archived issues also on chapter website. If you prefer to receive *The Midden* in hard copy and are not currently receiving it, please contact: Julie Massey, julie.massey@agnet.tamu.edu.

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The Midden Deadline for the next issue

October 31st

If you have Advanced Training or Volunteer Opportunities, please submit information to Cindy Howard, howardc@uhcl.edu



Educational programs of the Texas A&M AgriLife Extension Service are open to all people without regard to race, color, sex, religion, national origin, age, disability, genetic information, or veteran status. The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Court of Texas cooperating.