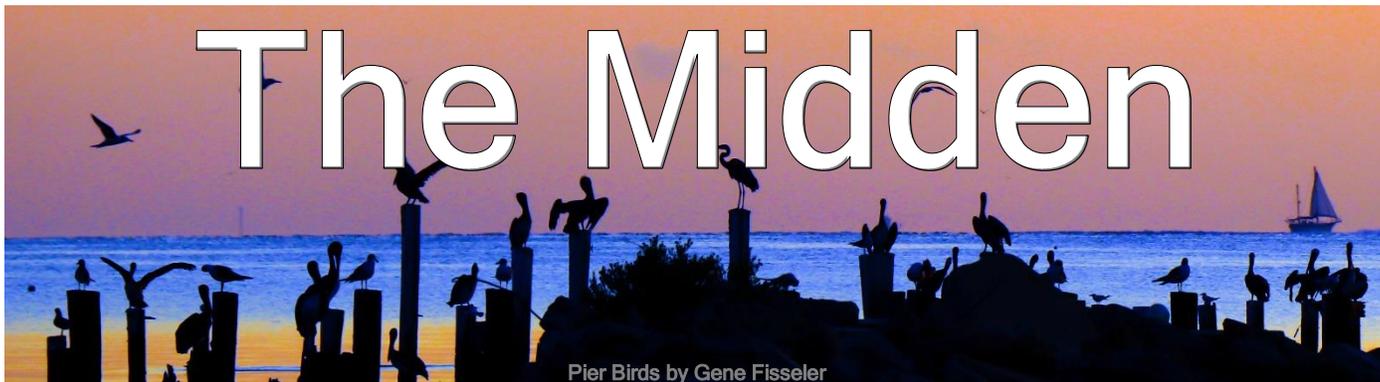


# The Midden



Galveston Bay Area Chapter - Texas Master Naturalists

December 2019

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## President's Corner by George Kyame

Welcome to the last Midden of 2019. It is with great pride that I confidently proclaim that our chapter has had and is still in the midst of a very successful year! Everyone should get that proverbial pat on the back for a job well done. As always, stand out performances and solid teamwork have produced what can only be described as a winning record.

As we are nearing the end of another fun and successful year in our GBA-TMN Chapter, I certainly hope that 2019 has been as fulfilling for you all as it has been for me. I hope all your goals have been reached and the volunteer hours have been personally rewarding and enjoyable.

Did I say winning record? Indeed. In addition to our prize winning submissions in photography at the state meeting, our Great Monofilament Adventure Chapter Project of the Year earned best in state by a panel of judges! Congratulations to the team members and leaders for their exemplary efforts. This is another one of our projects, I might mention, that does not end. It continues, grows, and improves!

On Thursday, December 5, we will have the chance to look back upon our year together at our final 2019 chapter meeting, again being held at Walter Hall Park in League City. Our gala event will contain all the trappings of a regular chapter meeting, but filled with awards of appreciation, election of board officers, the levity of our last meeting in a winter holiday season, and always a few fun surprises! I look forward to seeing all of you there.

With our December Chapter Meeting/Gala Award Supper right around the corner, please consider your naturalist friends and organizations that have gone above and beyond, so that we may recognize them on that evening with the Treasures of Bay Awards. Julie Massey is taking nominations with a link from her recent email.

Lastly, one final note. I have reached the conclusion of the 3-year tenure of my Presidential duties. It has been personally challenging and rewarding in many ways. I would like to thank the chapter and the plenty individuals for much support through my term. Advice, patience, criticism, mentorship, and cheers helped me to better serve our beloved Chapter. Grateful thanks to all.

Our 2019 class has been working very hard to put on a great show for the chapter meeting. Come on out! Congratulations to all of you and thanks. George J. Kyame.



## Next Chapter Meeting

December 5

Annual Awards  
Celebration  
and  
Officer Election

6:15pm

**Walter Hall Park**

## Wetland Wanderings: Yellow-crowned night-heron rules by Lana Berkowitz

Despite the best efforts of fans of Attwater's prairie chickens (APC), the yellow-crowned night-heron (YCNH) won Houston Audubon's Bird of Houston final face-off. Houston Mayor Sylvester Turner crowned the winner as the official bird of the Bayou City in September.



Photo by Greg Lavaty

The summer contest to raise bird conservation awareness concluded with an eight-bird bracket culled from 60 species nominated in the submission round. Online voting determined the winner of each round.

Initially APC was matched against the Northern cardinal. After booming past the cardinal, APC took on the great blue heron, which won by a neck in a race with the Northern mockingbird.

In the other brackets, the YCNH winged past the blue jay, and Eastern screech owl soared over the great-tailed grackle. The owl's winning streak screeched to a halt against the formidable YCNH.

That set up the showdown between the endangered APC, which most have never seen in the wild, and the YCNH, which often can be seen foraging in ditches.

"The tally for the final face-off round was 2,312 yellow-crowned night-heron to 1,437 Attwater's prairie chicken. Although the yellow-crowned night-heron was a fan favorite, we're glad this contest was able to bring more awareness to the Attwater's prairie chicken and the threats that it is facing," said Zineera Seth, Houston Audubon development events manager, who coordinated the contest with Anna Vallery.

Houston-area residents feel a kinship with YCNH, Zineera said. Many said they had seen it but didn't know what it was called, she said.

Full disclosure: I was rooting for APC. Zineera said her favorite was the great-tailed grackle, which was knocked out in the first bracket. But it is hard to argue with YCNH as the top bird.

Yellow-crowned night-heron (*Nyctanassa violacea*) is a year-round bird in our area, although it is less common in winter.

It is recognized by yellow crown on a black head, showy plume feather, white cheek stripe and thick black bill. It also has a gray front and neck, which contrasts with the facial pattern, and dingy yellow legs. Immature YCNH are brown and take three to four years to reach adult plumage, according to Houston Audubon bird facts. True to its name, YCNH are active mainly at night. The herons forage, sleep and nest in salt and freshwater locations where they can find crustaceans to eat. While they prefer wetlands, the birds have found a niche nesting in neighborhoods and downtown Houston, sometimes to the consternation of humans.

Houston Audubon fun fact: YCNH excrete stomach acid strong enough to dissolve the shells of crawfish, crabs and occasional turtles they feed on.

The birds are patient stalkers. Walking slowly, they forage along the water's edge. When they get within striking distance of prey, herons lunge with their bills and swallow small animals whole. They grab larger crabs by the legs or pincers and shake them apart to swallow the pieces.

During spring mating season, the males perform a neck-stretching display to impress females. Pairs may nest alone or with a large group sometimes intermingled with other heron species.

The nest, which can be as much as 4 feet across, is a platform made of sticks with a slight center depression and takes about 10 days to build. The male carries sticks to the female to start the nest. As the building continues, they work together. They prefer to strip sticks from dead trees rather than gather them from the ground, according to [AllAboutBirds.org](http://AllAboutBirds.org). The nest can be lined with leaves, vines or moss. Nests may be reused each year by the original builders or interlopers.

A YCNH clutch has two to six pale bluish eggs about 2 inches long. The incubation period is about 25 days.

YCNH's conservation status is "least concern," with a stable population. However, numbers are hard to determine because the herons are secretive and not always visible during typical bird counts.

## Prairie Ponderings: Measuring Change by Diane Humes

Armand Bayou Nature Center (ABNC) opened its doors in 1974. Save the land and nature will know what to do; that is what everyone thought.

However, we now know this is not true. Specifically, in our case, due to an incredible troublemaker, the Chinese tallow tree, *Triadica sebifera*, which grows quickly and prolifically. Toxins make them unpalatable. They were planted around our homes for those reasons and prized for their fall color. But, they jumped the fences!

They have been quietly and steadily taking over our native prairies. If you drive by any thick forest, look closely for the heart-shaped leaves, clusters of white popcorn seeds, or red fall color and you will most likely see a monoculture of these invaders.

At ABNC, three steps were taken to combat complete takeover: aerial spraying with herbicide over 300 acres of prairie in 1997-98; preparation of a 10-year management plan for burning and mowing; and establishment of a vegetation monitoring program.

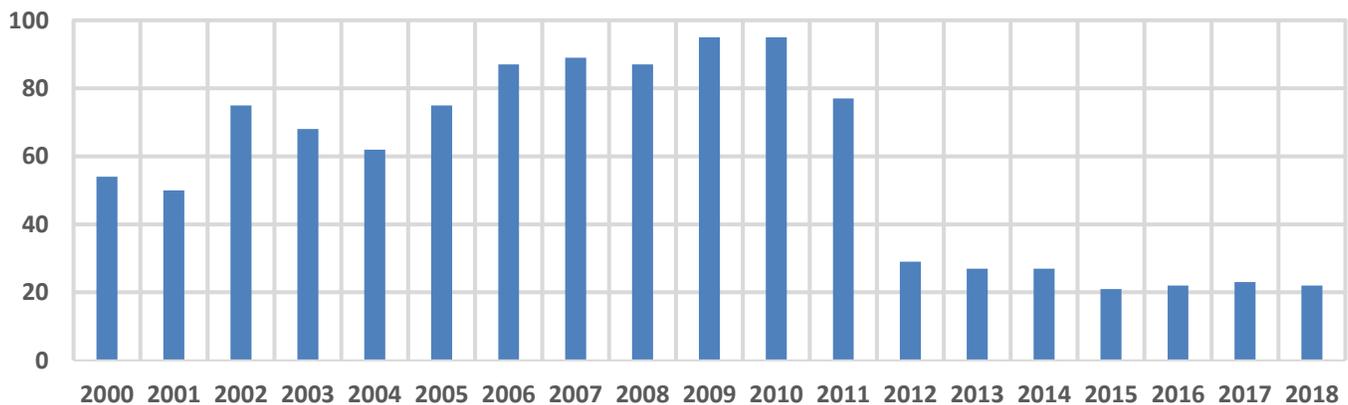
Volunteers have faithfully and laboriously collected vegetation data since 2000, spring and fall, along 32 transects. A transect is a line, in this case between two poles, permanently spaced about 100' apart, trending in

either a N-S or E-W direction. We toss a 3/4 m<sup>2</sup> quadrat - a square of PVC pipe - 20 times in a random fashion along the line and record presence or absence of ~40 species within it. Species fall along a spectrum from climax - bluestem grasses - to non-native invasive.

Laura Bradley and I have been collectors and keepers of the field data for some time and have copied it into a spreadsheet - now a gigantic database of very small numbers, since totals for each species are 20 or less. Analysis of this growing mass of data has worried us for a long time and has been attempted several times by us and others, with little definitive success. Inspired by the 2019 North American Prairie Conference held in our own backyard, Laura, Cindy Howard, and I pooled our efforts to get better results from the data and report them at the conference. It helped enormously that Laura majored in statistics and Cindy has the software and experience to make the analysis; I am the botanist and we used my copy of the database.

So, what did we do? We combined species numbers from all but 5 transects - #28 is a control and 4 others have shorter time frames - and looked at vegetation trends, using fall data only, from 2000 - 2018. We were very gratified to see significant declines in Chinese tallow tree numbers across the whole prairie.

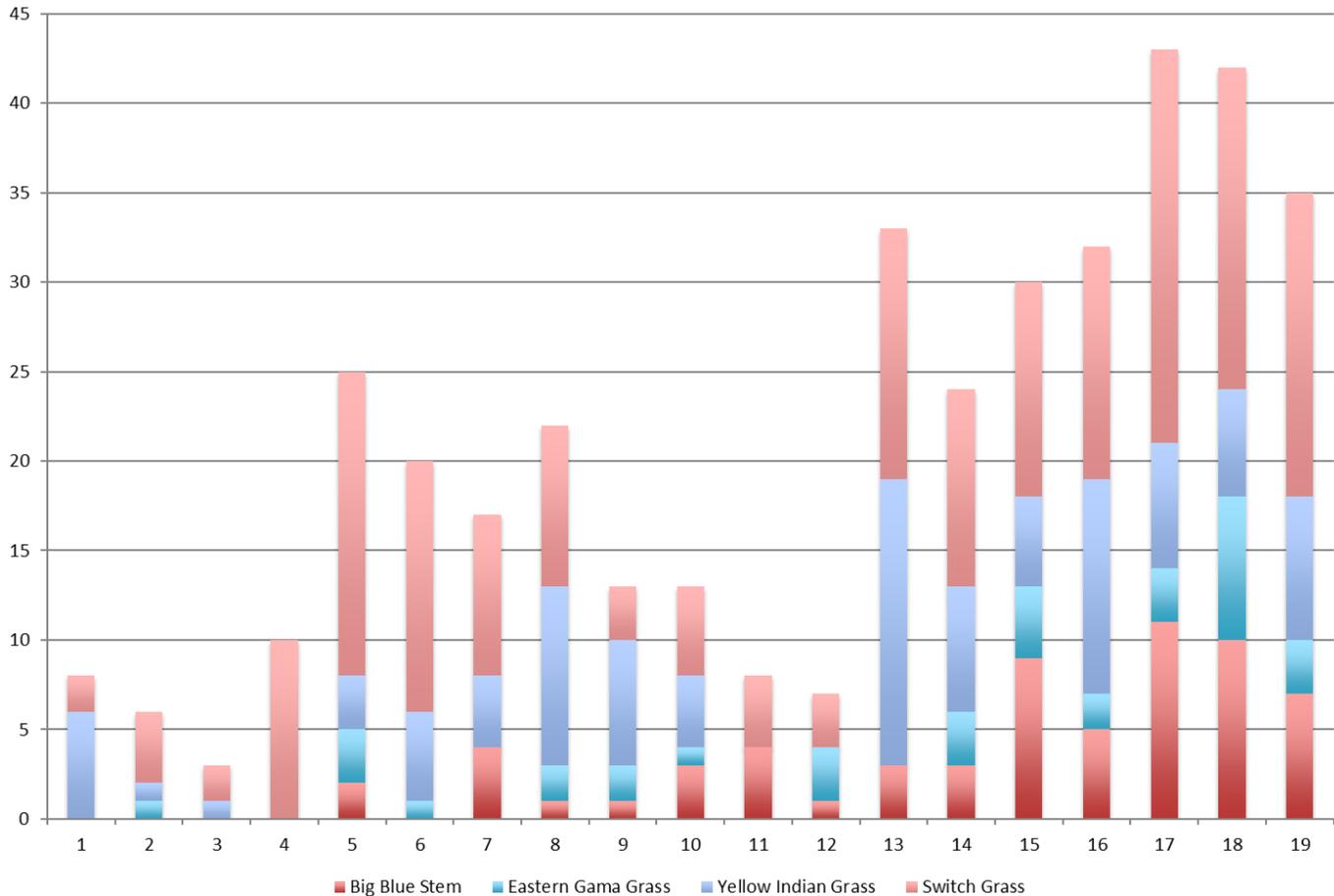
### Tallow



Next, we wanted to know how the climax species were faring - those with high Coefficients of Conservatism indicating pristine prairie - and chose to look at Big bluestem, *Andropogon gerardi*, Eastern gamagrass, *Tripsacum dactyloides*, Yellow Indiangrass, *Sorghastrum nutans*, and Switchgrass, *Panicum virgatum*. Results

pleased us greatly. As shown below, all climax grasses showed significant increases! Little bluestem, *Schizachyrium scoparium*, was not included in the analysis because it is ubiquitous on our prairie; it also shows an increase.

### Climax Species



Much more work remains to fully analyze the ABNC data. Which of our efforts has contributed the most? That will take more work to determine.

helped, I would like to present these promising results from all your labors.

Prairie Friday volunteers - most, but not all, master naturalists - and ABNC staff have used chain saws, loppers, herbicide, fire, mowers, and bad language to thwart Chinese tallows. To restore the prairie, we rescue, propagate, transplant, and plant prairie plants and collect more seed to do it again. According to Jim Duron, master number-keeper, we have planted 167,000 native prairie plants in 13 years! We mentor students and volunteer planters and have just successfully hosted Prairie Pandemonium 2019, an annual event in which 100 volunteers planted 3000 plants in 3 hours!

Restoring the critically endangered prairie is certainly a labor of love for an uncertain future. For all who have

### 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 this purpose or want to join the team, please contact Diane Humes, [treimanhumes@gmail.com](mailto:treimanhumes@gmail.com).

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## Coastal Corner: Used Fishing Line and the American Oystercatcher – A tale of determination and resolve by Maureen Nolan-Wilde

During October, a group of chapter volunteers assisted Dr. Sue Heath from Gulf Coast Bird Observatory (GCBO) in locating, capturing and safely releasing American oystercatchers that had become entangled in used fishing line at the Texas City Dike.

The adventure started when sightings of the entangled birds were reported by chapter bird survey participants to Sue and the NICK team. Members of the team went to numerous locations on the dike to determine the number of birds in danger and their locations. We found that at least six American oystercatchers had become entangled, one with line wrapped around both legs.

The unusually large number of entangled birds can be attributed to persistent high tides that have been covering the oystercatchers' natural habitat. As a result, they have been forced to feed at the dike on fish carcasses left by anglers, and, in the process, becoming entangled by fishing line carelessly discarded by the same people.

Dr. Sue and the team worked on a strategy that involved various types of nets, baits and herding techniques to corral the birds. The good news is that we were able to capture two of the birds and successfully release them.

So just how did we do it?

Our first success involved a bow net baited with old fish carcasses. We lay in wait as a hungry bird slowly approached until Dr. Sue was able to spring the trap. We quickly removed the bird from the trap and helped Sue cut away the fishing line. Our efforts were posted on social media, allowing over 8,000 people to share in this endeavor and learn how discarded fishing line can endanger wildlife.

Due to huge amounts of discarded line at the dike, Stennie Meadours partnered with GCBO to host a clean-up, focusing solely on fishing line. Eighteen volunteers (GCBO staff and chapter volunteers) picked up eight large bags of fishing line that will be cleaned and sent off for recycling later this year.

After the cleanup, Dr. Sue and volunteers looked for the remaining entangled birds. This time, Dr. Sue used a net gun fired from a moving truck to snag the oystercatcher banded W1W. Great news! This was the bird with two entangled feet; the line was removed and the bird quickly released.



Photo by Alan Wilde

The team continues to monitor the dike, exploring ways to safely trap the remaining birds and spread the word about the dangers of discarded fishing line. We should give a special shout-out to Mitch Philpott, who regularly fishes the dike, picking up discarded line and educating his fellow anglers.

## Water Smart AT by Verva Densmore

Charriss York knows about water. She began her recent presentation to a group of Texas Master Naturalists by reminding us that just 7 years ago we were in a severe drought and that Texas has water cycles of feast or famine. Since Hurricane Harvey, and the excess of water that storm brought our way, we have become complacent and forgotten what it means to have too little water. Remembering, and taking action to preserve supplies, is vital to our future.

Charriss is the Green Infrastructure team lead at the Texas Community Watershed Partners. Green

infrastructure (GI) is a nature-based, engineered solution to storm water issues such as watersmart landscapes, water retention systems, and green roofs. The Ghirardi Family WaterSmart Park in League City (1910 Louisiana Ave, League City) showcases GI examples that are used when Charriss's team works with communities, drainage districts, water authorities, parks departments and landowners to fund, design and install GI.

When you enter the park from the parking lot, you will see a parking area made from bricks. There are two areas that look nearly the same, but are actually quite

different in structure. One side is a typical sealed brick surface and rainwater runs off freely into drains; the other allows the rain to absorb into the soil and slow its progress to the drains. Both are attractive. The second one is fulfilling an environmental function.



Photo by Mike Wehrman

The park also helps homeowners see rain gardens firsthand. The gardens work with nature to capture, store, and treat storm water runoff and provide both water quality and water quantity benefits. The gardens have signs explaining how the gardens work but, more importantly, they also show how beautiful the gardens can be so homeowners can imagine one in their own yard.

Harvesting rainwater is another important part of a GI installation and the park has a rain barrel system that is tied to a drip irrigation system. Interestingly, the rain barrel provided some unexpected learning opportunities for the park planners. For example, the system does not

have a first event bypass and, therefore, puts contaminants into the barrel after the first rain of the season. Future systems will include this feature. Also, the pipes from the roof to the barrel were not insulated and are subject to freezing. They are now wrapped at the beginning of the winter season. Finally, the out-flow pipe is not near the top of the tank, but about 1/3 of the way down the side, and this means the full capacity of the tank is underutilized. The park is a teaching tool and, as Charriss said, there is value in errors. Because of the lessons learned here, hopefully, homeowners and cities can install more effective rain harvesting systems.

Of special interest to many League City residents, the Ghirardi Compton Oak shades a large area of the park. This is the more than 120-year-old oak that the city moved from Hwy 518 to its current spot in the park after a loud outcry from citizens hearing of the original plan to cut the oak down. Over five years ago, workers moved the oak using a very large crane. The first two years after it was moved were touch and go making some wonder if the \$200,000 cost to move it was wasted. However, since the city arborist took over caring for the oak, it has flourished and now seems healthy and strong.

This small park is the result of an alliance between state, city, and neighborhood groups working together to plan, pay for, and maintain an area of learning and recreation. Stop by to see the green infrastructure, or just enjoy the shade of the trees while you have a picnic.

For more information on green infrastructure, go to <https://watersmart.tamu.edu>.

## Dolphin Challenge 2020 Needs You! by Julie Massey

Join us on Saturday, Feb. 1, at Texas A&M Galveston for Dolphin Challenge!

“What does a refractometer measure?”

“What are fishes that spend most of their lives in freshwater but migrate to saltwater are called?”

“The Marine Mammal Protection Act was enacted in what year?”

Can you hear the clock ticking as you try to answer these questions? Let’s put a buzzer in your hand to let you face off with a team of enthusiastic, determined high school students! Whew! The pressure is on!

Welcome to the fast-paced, fun, exciting world of National Ocean Sciences Bowl! National Ocean Sciences Bowl (NOSB) is a nationally recognized and highly acclaimed high school academic competition that provides a forum for students to test their knowledge of the marine sciences including biology, chemistry, geography, physics, geology, social sciences and

technology. Texas Sea Grant sponsors the National Ocean Science Bowl competitions in Texas.



We need you to make Dolphin Challenge a success!

Volunteers are needed in every competition room for each round. They serve as competition officials such as rules judge, science judge, moderator, scorekeeper, time keeper and runner as well as hosts. Training is required.

Required training for Dolphin Challenge will be held at the Extension Office\*. Volunteers need to attend only one training.

Training will be held:

- Monday, Jan. 13 - 10 am - noon
- Tuesday, Jan. 14 - 10 am - noon
- Tuesday, Jan. 14, 1:30-3:30 pm

Dolphin Challenge volunteers will enjoy a great lunch, receive a terrific T-shirt, have loads of fun and bask in the admiration of smart high school students from across Texas.

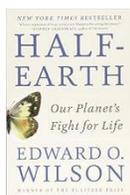
To learn more about NOSB, visit their website at [www.nosb.org](http://www.nosb.org).

To register for volunteer training, contact Julie at 281-309-5063 or [julie.massey@ag.tamu.edu](mailto:julie.massey@ag.tamu.edu).

## Heritage Book Study - Review of *Half-Earth: Our Planet's Fight for Life*

by Madeleine K. Barnes

The title *Half-Earth* is Edward O. Wilson's solution to what he describes as our planet's fight for life. This is the latest of Wilson's books that the book study has read and it is very different in focus from his previous works.



Edward O. Wilson is the world's leading myrmecologist which is a branch of entomology focusing on the scientific study of ants. He has studied and described 450+ new ant species and is also considered to "the father of biodiversity". Wilson further identifies himself as a naturalist, who as a field biologist, studies plants, animals, insects, and other living things. In this book he is the scientist who identifies the known aspects of ecosystems and the interactions between animals to help us understand human connections and relationships on our shared earth. Wilson states that "one-quarter to one-half of current species will survive to the end of the century." That means the rest either become extinct or the number becomes too low to be a viable population.

Is this collateral damage the consequence of all our human activities around the world? Can we, as humans, examine the potentiality of implementing a mission such as Wilson suggests and can we remove our demand for economic values and implement his idea of biodiversity preserves on at least half the Earth? This will require thinking beyond ourselves, not just outside of the box, but setting aside large tracts of land to be successful. This is only one aspect of future planning which Wilson identifies. He focuses on very high goals, rather than on the negatives, and says there is still time to act to preserve critical wildlife areas.

So, what parts of the earth are identified for this saving effort and why or how were they selected? According to Wilson, "The most vulnerable habitats of all, with the highest extinction rate per unit area, are rivers, streams, and lakes in both tropical and temperate regions." Wilson states that "The list of places was chosen on the basis of the high number of species at greatest risk that could be saved by protection of the area in which they live." It is a

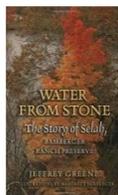
very unique list developed from the perspective of conservation scientists.

Given that Wilson is a scientist, he is very comfortable in identifying scientific issues, but the major weakness of the book and the solution appears to be the lack of a real plan to accomplish the mission of creating Half-Earth preserves in the various countries involved. He has established a foundation building more support for his mission, so it is reaching more people. The book is global in coverage and provides very important information about current issues in our environment. Wilson's closing admonition is "Do no further harm to the biosphere." That will be the major challenge for us as a species.

The book study participants have completed the book selections for next year. The 2020 reading selections with meeting dates are:

- January 6, 2020 & February 3, 2020 - *The Secret World of Red Wolves: The Fight to Save North America's Other Wolf* by T. DeLene Beeland
- March 2, 2020, April 6, 2020 & May 4, 2020 - *The Gulf* by Jack E. Davis
- June 8, 2020 & July 6, 2020 - *A Farewell to Ice: A Report From the Arctic* by Peter Wadhams
- August 3, 2020 & September 14, 2020 - *The Worst Hard Time: The Untold Story of Those Who Survived The Great American Dust Bowl* by Timothy Eagan
- October 5, 2020 & November 2, 2020 - *One More Warbler: A Life with Birds* by Victor Emanuel, S. Kirk Walsh (Contributor)
- December 7, 2020 - *Sea Level Change in the Gulf of Mexico* by Richard A. Davis, Jr.

We will meet on Monday, December 2, 2019, to discuss the second half, pages 104-207, of *Water from Stone: The Story of Selah, Bamberger Ranch Preserve* by Jeffrey Greene.



Our first meeting of the new year will be on Monday, January 6, 2020, when we will meet to discuss the first half, pages 3-114 of *The Secret World of Red Wolves: The Fight to Save North America's Other Wolf*

by T. DeLene Beeland. Join us in discussing both of these interesting books.

We welcome your participation each month for two hours on the first Monday of the month starting at 10am at the Extension Office\*. Please note that we welcome anyone to participate whether you are TMN certified, recertified, or just want to remain a chapter member. We look forward to seeing you and let us know if you have read any good naturalist books lately. Happy trails!

## Big Picture: Habitability by Diane Humes

Yellowstone National Park is a huge, magnificent landscape, and teeming with bison, wolves, bears, elk, moose, bighorn sheep, birds, amphibians, fish, reptiles, bats, fox, mice, bobcats, mountain lions, deer - hundreds of species of "charismatic megafauna". In addition, it is a strange and enigmatic land, containing over half of the world's geysers, hot springs and mudpots. These other-worldly habitats are dangerous - too hot for human life and comfort - but, as it turns out, home to many colorful microscopic extremophiles - organisms which are yielding fascinating clues to the origins of life on Earth and, possibly, on other worlds. This was the topic of the Habitability Conference sponsored by the LPI this September in Big Sky, Montana.

Life is much stranger than fiction; microbial life forms found living in Yellowstone and elsewhere, as distinct from bacteria, are stranger and more adaptable than we could possibly imagine. Called "extremophiles", some microbes live around undersea hydrothermal vents where temperatures reach 122°C; others are found in extreme acidic and basic environments, from pH 0 to pH 12.8; some organisms tolerate extremely high radiation; others live in the extreme cold of Arctic and Antarctic ice where their cells can survive at -40°C; extreme xerophiles withstand desiccation in locations with water activity levels of ~0.5, although the hardest desert dwellers require at least 0.8; and, halophiles live in salt ponds with salt concentrations of 30% - ten times higher than seawater. Some microbes can "breathe" metals, others make magnets, some clean oil spills, and a few remain dormant for 1000+ years.

Clearly, life forms - which, by definition are self-sustaining and evolving biological units - could have many variations. The search for life on Earth always starts with water. So, in looking for life in the Universe, scientists like to start with finding water, preferably on Earth-like planets, just the right distance from their star, rocky and within the "habitable zone". Astronomers have found over 4000 exoplanets potentially able to support life. Will we be able to recognize it, and can we detect it?

In the interest of further exploration within our own solar system, NASA has announced its fourth New Frontiers mission, with a name that is destined to be dear to our hearts, a spacecraft mission called "Dragonfly" is scheduled to launch to Saturn's moon, Titan, in 2026, arriving in 2034. Dragonfly's mission will be to search for liquid water and complex hydrocarbons - signatures of life, perhaps similar to extremophiles on Earth.



Photo by Diane Humes

Dragonfly will be a rotorcraft, a drone with 8 helicopter-like propellers, able to "hop", traveling farther across Titan's dune fields and its Selk impact crater than any rover has been able to accomplish on Mars. Titan is thought to be a world of rivers, lakes and seas of liquid hydrocarbons, with an atmosphere dense with nitrogen and carbon, such as Earth's atmosphere.

Meanwhile, back on Earth, "Climate Changed" was the topic at Gustavus Adolphus College to a full house for the 55th annual Nobel Conference. The consensus was that our climate is changed, it's not up for debate, get used to it, and, to be blunt, time to do something. The climate has already warmed 1.5°C, mainly because the atmospheric concentration of CO<sub>2</sub> continues to rise. If we, the community of Earth-dwelling people, wish to avoid extremely adverse future consequences of further rising temperatures, we must cut our greenhouse gas

emissions by 50% soon; hopefully, by 2030, a somewhat arbitrary target set by the IPCC, and get to net zero emissions by 2050.

Charts and graphs abound on the internet and I found one showing yesterday's CO<sub>2</sub> level (409ppm), the level when I was born (311.9ppm), the level when my mother was born (306.8), and a pretty steady line back 1000 years showing highs in 1832 of 284.4ppm, in 1190 of 283.9ppm, and in 1165 of 284.1. Please do not blame my mother; her contribution and, by inference, that of my grandparents, has clearly been less than mine!

In 1804, the world's human population was about one billion people. Numbers doubled to two billion by the time of my mother's birth. But, there are 7.7 billion of us alive today, which is nearly a quadrupling of the population since then. And our lifestyles have certainly changed! We would seem to own our environmental problems, collectively.

Nobel Conference speaker Dr. Richard Alley, Professor of Geosciences at Pennsylvania State University and noted Greenland ice core researcher, described the correlation between calories and energy. He said that, "2000 calories per day was about the equivalent energy usage of a 100W lightbulb. In the US, people use more than 200,000 calories per day, of which 80% comes from fossil fuel. Each person in our country produces 16 tons CO<sub>2</sub> per year and 1/2 ton of trash."

I made a rough calculation of my own carbon footprint using [nature.org](http://nature.org). Factoring in my home size, vehicle fuel efficiency (mpg), average food consumption, and miles traveled, including trips by airplane, my score was 34 tons CO<sub>2</sub> per year versus an average of 75 tons CO<sub>2</sub> per year for homes and lifestyles supposedly similar to mine. According to my electric provider, my house uses 40% less electricity than similar homes. Perhaps my carbon footprint is accurate, and my fun trips to visit family and see and do interesting things are the culprits; I thought I was doing better!

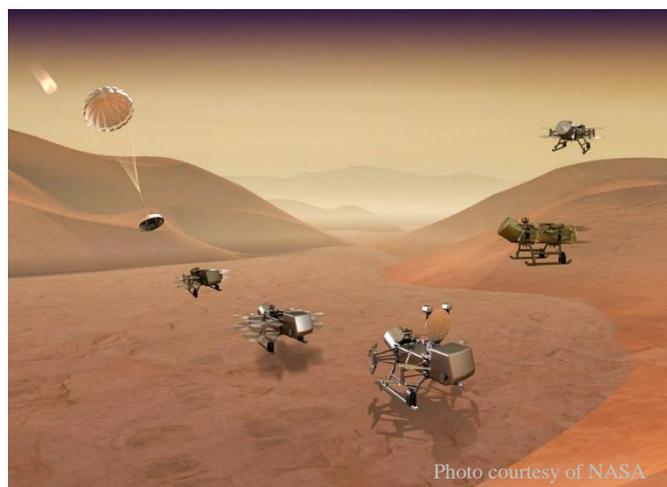
Choose from a plethora of carbon footprint calculators and calculate for yourself. See how you measure up.

But, don't cringe at your own numbers; this problem is bigger than any one of us. Amitav Ghosh, writer, reported on military use of fossil fuels. Seems that preparing for war is exempt from the goals of the Paris Climate Accord. And, the US military is the 47th largest emitter of CO<sub>2</sub> in the world, with a larger carbon footprint than most countries. Although our armed services foresee climate change as a world-destabilizer and their far-flung bases may be at future risk, they are locked into long-term fuel use for transportation. As are all armies of the world. Hadn't thought about that and it is beyond my control.

Sheila Watt-Cloutier spoke of changes occurring in the Canadian Arctic due to warming; the Inuit people, who have contributed little to the problem, will be among the first to suffer its consequences. Also, the Brazilian rainforest, personally dear to some of us and vital to the world's climate and biodiversity, is currently being burned to grow soybeans and beef and may soon reach a tipping point beyond which it is irreversibly destroyed, to the detriment of all.

Diana Liverman, Regents Professor of Geography and Development at the University of Arizona, spoke of the increased food insecurity, disaster and health risks, and damage to ecosystems from climate change. Quoting Ban Ki Moon, UN Sec General 2015, she said, "We are the first generation that can put an end to poverty and we are the last generation that can put an end to climate change, so we [must] address climate change. These opportunities coincide with a time of unease for the human family."

Finally, Dr. David Keith, Harvard professor of applied physics and public policy, has an engineering scheme to ameliorate the dangerous effects of climate change by capturing carbon dioxide from the atmosphere at an industrial scale. Genius or crazy? He thinks it is time for the world to have a discussion and consider making such a plan.



So, what is the good news? Half the Earth remains wild. Places like Yellowstone abound with wildlife. Solar panels are suddenly very cheap - under 30¢ per watt - making it easier than ever to use clean energy. The Kirtland warbler, nearly extinct 50 years ago, has been taken off the endangered species list. Lots of people, master naturalists, for sure, are working very hard to conserve and restore habitats for the sake of the future. And, Dragonfly is going to explore Titan; if we can do that, we can do anything. Martin Luther said, "Even if I knew that tomorrow the world would go to pieces, I would still plant my apple tree."

## TMN State Meeting 2019 by Susette Mahaffey and Patty Trimmingham

Our chapter had a good turnout at the 2019 TMN State Conference in Rockwall with 17 members attending. We couldn't have asked for better weather. The Dallas/Fort Worth chapters did an excellent job of planning field trips that had something for everyone. From prairies to fossil hunting to trash pickup by canoe and bird watching, the field trips were the highlight of the conference, especially since the sun was shining. Of course, the educational sessions were hard to beat. There were so many classes to choose from: Big Cats, butterflies, grasses, birds, snakes and even scat, just to name a few.

The best part of the conference was that we FINALLY got our 2019 recertification pins! The 2020 state conference will be held in Houston (!) and the American bumblebee will be the 2020 recertification pin. We have been told they already have the bee pins in stock.

Our chapter did well in the awards department. We won Project of the Year with our Monofilament project, receiving \$800.00. Rick Becker and Susette Mahaffey presented the project with enthusiasm and professionalism. And then there were our photography awards: Scott Buckel and Linda Davis won 2nd and 3rd places, respectively, in the Birds category and Alan Wilde and Robin Kendrick Yates won 1st and 2nd places, respectively, for photographs depicting Historical/At Work and Play. Congratulations one and all!



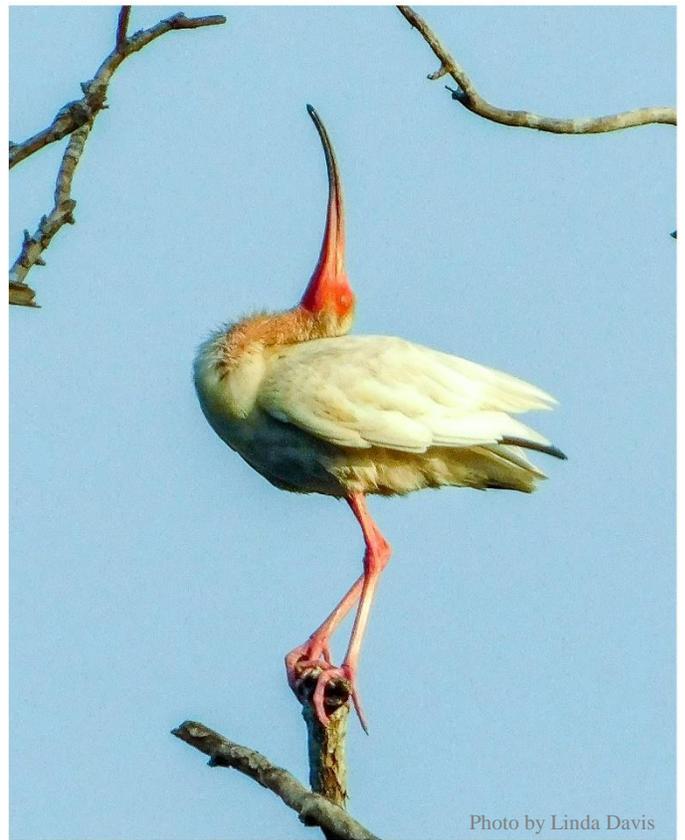
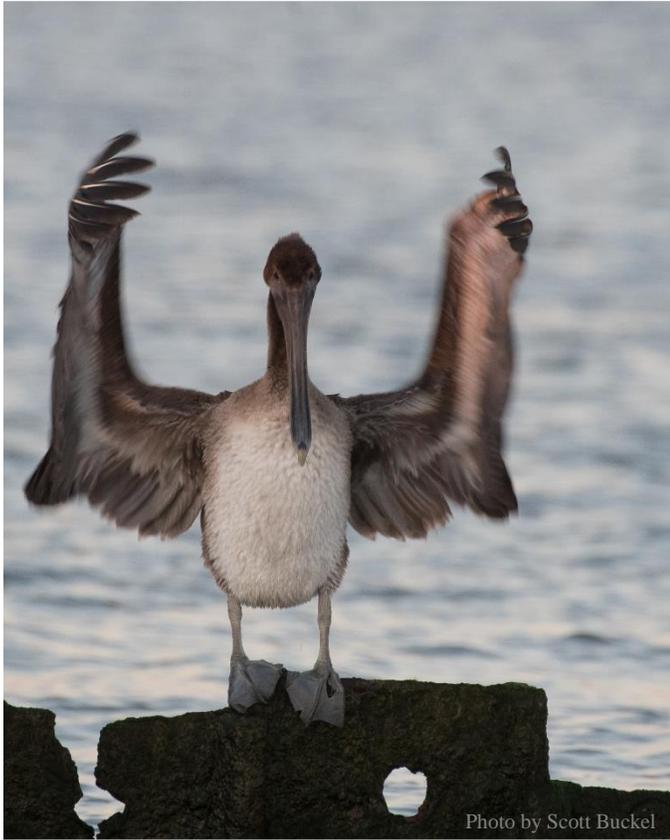
Photo by Sandy Parker

The weekend was a great experience for each of us who attended. We enjoyed sharing our experiences over dinner each night, together with old and new friends; as master naturalists we all love nature and desire to preserve it as a legacy for the future. We each brought home great memories of our time at the conference.

## Winning Photos



Photo by Alan Wilde



## December and January Activities

### ADVANCED TRAINING OPPORTUNITIES

**Chapter Meeting** - Year-end Celebration! (No AT)  
6:15 Dinner, Social Time, Elections, Awards, Fun

Other than Dolphin Challenge training (pg. 6), no AT is currently planned for December or January.

#### Ongoing

**Galveston Island SP** (Winter suspension until March)  
10am at the Welcome Center  
Every Saturday - Prairie Adventures  
Every Sunday - Bay Explorations  
Tours 1 to 1 ½ hours long. Bring water and family.

#### Heritage Book Study Group

First Monday of every month. Extension Office\*  
10am-noon; 2 hours AT  
Contact: Elsie Smith (409) 392-7003  
See Pg. 7 for meeting dates and books.

### STEWARDSHIP OPPORTUNITIES

#### Ongoing Activities:

**Mondays** - Galveston Island SP (alternate Mondays),  
Contact: Chatt Smith [chattsmith@gmail.com](mailto:chattsmith@gmail.com)

#### Tuesdays -

- Sheldon Lake SP,  
Contact: Tom Solomon [crandtr@sbcglobal.net](mailto:crandtr@sbcglobal.net)
- Texas City Prairie Preserve, Contact: Aaron Tjelmeland [ATjelmeland@tnc.org](mailto:ATjelmeland@tnc.org)
- Environmental Institute of Houston at UHCL,  
Contact: Wendy Reistle [reistle@uhcl.edu](mailto:reistle@uhcl.edu)

**Wednesdays** - Wetland Restoration Team, Contact:  
Colleen Ulibarri [culibarri@tamu.edu](mailto:culibarri@tamu.edu)

#### Thursdays -

- Stormwater Wetland Team,  
Contact: Christie Taylor [cctaylor@tamu.edu](mailto:cctaylor@tamu.edu)
- San Jacinto SP, Contact:  
Jim Duron [wishkad@yahoo.com](mailto:wishkad@yahoo.com)

**Fridays** - Prairie Friday, ABNC,  
Contact: Chatt Smith [chattsmith@gmail.com](mailto:chattsmith@gmail.com)

**Saturday** - Exploration Green Tree, (second & last Sat.)  
Contact Jerry Hamby [jhmb4@comcast.com](mailto:jhmb4@comcast.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](mailto:snellsw@verizon.net).

**Education and Outreach Committee** - We can use your help in supporting outreach efforts, responding to requests for exhibit booths and presenters, planning Treasures of the Bay; and developing a library of education-outreach materials. Contact Sara Snell [snellsw@verizon.net](mailto: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** - usually First Tuesday, check calendar

#### Committee Meetings

Advanced Training - Third Monday, 10-noon

Education/Outreach - Third Tuesday, 1-2:30pm

Communication - Meets quarterly, check calendar

Midden Team - Dec. 30, Monday, 9-noon

### The Midden Deadline for the next issue

**December 28**

If you have Advanced Training or Volunteer Opportunities, please submit information to Cindy Liening, [calieni272@msn.com](mailto:calieni272@msn.com).

TEXAS A&M  
**AGRI LIFE**  
EXTENSION

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\*Extension Office = Texas A&M AgriLife Extension Service – Galveston County Office (Carbide Park)