The Midden


Tangent Arc by Allan Treiman

Galveston Bay Area Chapter - Texas Master Naturalists June 2019

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Oyster Reef Ecology and Restoration in Galveston Bay

By

Dr. Laura Jurgens
Texas A&M Galveston

At
Extension Office*

President's Corner by George Kyame

Greetings fellow naturalists,

As of this writing, we are quickly approaching an Upper Coastal Texas summer. As the mercury finally creeps into the 90s, let us all remember to properly prepare for all of our outdoor stewardship. For me, *numero uno* is always eye protection. I want UV safety as well as a shield to frequently encountered pokey objects, and the occasional chemical or mud splash. That said, I suggest the Big Three: hydration, and plenty of it; sun protective clothing, treated, or just a breathable covering; SPF 30 or above lotion. Take care out in the field.

Hawk Watch, our yearly migrating raptor count and Citizen Science project, concluded on May 1st. I thought this year was very fruitful with quite a few high-number days; ones we shall call "clicker worthy"! Haha. By the numbers, our results look more like this: 12,700, broad-winged hawks, and nearly 3,000 Mississippi kites! Quite a few others as well.

Finally, Congratulations to our 2019 Spring Training Class! On May 9, the class heard Julie Massey address the topic, "Being a Naturalist and Working with the Public". Remember "Advice from an old Farmer"? Well I do! Some folks shared their own class memories and others their favorite moments, and then, after 12 weeks, class members received their badges.

We then promptly assembled in classroom 2, where partners and chapter members introduced their respective opportunities for stewardship and volunteer service to our newest GBA members. As always, it was a lovely cacophony of exciting pitches and interesting conversation. I certainly hope our newest members will find their own most rewarding naturalist niches! Bravo all.

Enjoy these newsy notables and hoorays:

Congratulations to our wonderful partner, UHCL EIH on receiving the TPWD Co-Op grant Ed-Ventures! I've heard there will be some excellent Education Outreach here.

We recently hosted the winners of our chapter's auction contribution from the 2018 State Meeting. Reviews were great. There were two nights in GISP accommodations, and some specialized GBAC tours and hospitality. Thanks to our Nesting Island team especially, as the boat tour was the highlight!

Hurray to our friend and longtime member, Carlos Rios. He just became the latest Moody Gardens Shining Star!

See y'all at the June 6 Chapter Meeting, yours truly, GJK.

Wetland Wanderings: Texas Wetlands at the Houston Zoo by Lana Berkowitz

At the Houston Zoo, just past the meerkats and sea lions, near the orangutans' hangout but before you get to the African Forest, look for the more familiar American alligators, whooping cranes and bald eagles, which are stars of the new Texas wetland exhibit.

Photo by Debbie Répasz

In the heart of the zoo, in place of the duck pond, the Kathrine G. McGovern Texas Wetlands demonstrates the importance and resilience of the wetland environment, according to a release from the zoo. The habitat area opened just before Memorial Day.

To mimic a wetland, the exhibit has been designed to flood during heavy rains with excess water filtering through plants as it is slowly released to the bayous.

The ecosystem also supports gar, snapping turtles, and a diversity of insects, fishes, and other small animals that make up the web of life in a natural wetland.

The zoo aims to engage visitors in breeding, monitoring, rehabilitation and release programs with local species of birds, reptiles, bats, and pollinators. Students will get in-the-field conservation experience through education programs.

Conservation messaging is key throughout the exhibits, according to the zoo, with the hope that visitors will leave inspired to take action to save animals in the wild.

Sounds like an interesting place for a chapter field trip.

Prairie Ponderings: Restoring a Prairie by Diane Humes

The Curtis Prairie at the University of Wisconsin Arboretum is the oldest example of an ecologically restored prairie in the world.

Settlers grew corn and oats from 1836 until 1920 on the land 4 miles from campus and downtown Madison. The land lay fallow until 1927, when it became a horse pasture until its purchase by the UW in 1933. The eastern two-thirds of this land -- too wet to plow -- contained undisturbed prairie (12.1 acres) and a hay meadow (21 acres) that had seen only periodic mowing. The western pastures and fields (36 acres) grew quack grass, Kentucky bluegrass, and other exotic species instead of prairie.

Planned as a place for research and education, with representation all of Wisconsin's ecological zones, the arboretum needed to re-create the original tallgrass prairie and oak openings habitats formerly common around Madison. Although prairie restoration had never been attempted, Aldo Leopold, UW Arboretum research director, Norman Fassett, UW botanist, and John Curtis, UW botanist and plant ecologist, immediately began experimenting with various methods to re-vegetate the old farmland: transporting sod from other prairies, spreading prairie seed, mulching with prairie hay, planting shrubs, and using prescribed fires to subdue the exotics. Most importantly, they set up monitoring grids and kept data on the prairie's progress.

Aldo Leopold (1887-1948), author, philosopher, scientist, ecologist, forester, conservationist, environmentalist, moved to Wisconsin in 1924 and became the first UW professor of game management. Inspired by work at the arboretum, he experimented with land restoration on his own property, which became the subject of essays in *A Sand County Almanac* -- a must-read for every master naturalist! This is what he had to say in "Roadside Prairies" from *For the Health of the Land*:

A good test of 'education' would be to ask a hundred people what is meant by a prairie.
Most, I fear, would answer that a prairie is a flat monotonous place good for sixty miles per hour. A few, I hope, would know.

Tall corn and fat Herefords are prairie symbols. They symbolize the greatest mass effort in human history to extract a rich life from a rich soil.

Pasque flower and blazing star are also prairie symbols. They symbolize the greatest mass effort in evolutionary

history to create a rich soil for man to live on. Yet how many farms possess, or cherish, a remnant of them? Just as the barbarians burned the libraries, which explained the origins of human culture, so have we plowed under the prairie plants, which explain the origins of our prairie empire.

Any prairie farm can have a library of prairie plants, for they are drouth-proof [sic] and fire-proof, and they are content with any roadside, rocky knoll, or sandy hillside not needed for cow or plow. Unlike books, which divulge their meaning only when you dig for it, the prairie plants yearly repeat their story, in technicolor, from the first pale blooms of pasque in April to the wine-red plumes of bluestem in the fall. All but the blind may read, and gather from the reading new lessons in the meaning of America.

The prairie plants are tough; they ask no quarter of wind or weather, require no pampering with hoe or sprinkler. Nothing can whip them except the overhead shade of trees or sweet clover, the creeping stolons of quack grass, or the continual cropping of cows. Just why the prairie plants stood up under grazing by buffalo and elk, but now succumb to cows, is a mystery. Perhaps the answer is barbed wire, which keeps the cows too long in one place...

The best way to start a library of prairie plants is to find the spot which contains a remnant, and then build up other species around it. Prairie dock and bluestem grass are commonly the last survivors. Most of the prairie species can be grown in the garden from seed and later transplanted to the wild; the University Arboretum has thus established some 30 of them… It is a sad commentary on our Americanism that the prairie flowers are ignored by commercial seed-dealers and nurseries, and there is no literature on how to grow them. He who learns how is truly a pioneer…


Photo courtesy of Jeff Miller-UW Madison

The arboretum is now a beloved educational and recreational space, but not nearly as wild as in Leopold's time, when he used to trap mink. It is completely surrounded by the city of Madison, with encroachments on all sides. The Curtis prairie has grown to 95 acres with, documented, 265 plant species of which 230 are native. The original monitoring grid of steel stakes now uses GPS and consists of >1,000 1-m^2 plots sampled about every 5 years. The average such plot contains ~11 native species and ~2 non-natives. Although some plots have no native species, the most species-rich plot contains 34 native species. The largest concentration of species-rich plots is in the original undisturbed prairie section.

A multigenerational and ongoing team effort,the UW Arboretum's pioneering prairie experiment shows that even after 86 years, a prairie is NOT restored; although it is beautiful and greatly resembles an intact prairie. Aldo Leopold, prescient as always, said, "Wildflower corners are easy to maintain, but once gone, they are hard to rebuild."

Coastal Corner: Our Sea Turtle Saga Continues by Maureen Nolan-Wilde

Over twelve years ago, chapter members Steve Alexander, Jack Clason, and Mel Measeles volunteered to help Texas A&M University at Galveston (TAMUG) monitor sea turtles along Galveston beaches. Soon joined by Carlos Rios, their combined efforts developed into one of our chapter's cornerstone projects.

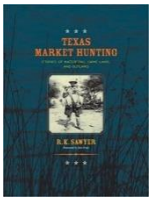
Since that time, an ever-increasing number of chapter members has been monitoring beaches for nesting turtles between April and July on behalf of TAMUG and Turtle Island Restoration Network (TIRN). We partnered with NOAA to provide outreach, hosting sea turtle tours to over 7,600 people; we also assisted in sea turtle releases and the management of cold-stunned turtles at NOAA's location in Galveston.


Photo courtesy of Steve Alexander

Because of these efforts, we are so proud to announce that we have been asked by Dr. Chris Marshall, head of the new sea turtle research lab at TAMUG, to provide volunteers to be added his Federal and State permits to harvest sea turtle eggs and to rescue stranded sea turtles. These four volunteers have gone through extensive training given by rangers from Padre Island National Seashore.

This team of first-responders will be joining TAMUG and TIRN personnel when a nest is found or a stranded sea turtle needs help. Dr. Marshall is looking forward to our participation in this effort and hopes to explore additional opportunities in the future.

Heritage Book Study - Review of *Texas Market Hunting* by Madeleine K. Barnes



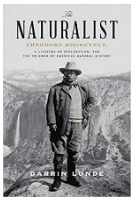
Texas Market Hunting: Stories of Waterfowl, Game Laws, and Outlaws, by R.K. Sawyer is not a pleasant book for naturalists to read. It chronicles the human slaughter of wildlife throughout the 1800s proceeding into the 1900s and the extinctions of numerous species. As a piece of Texas history, it needs to be examined in the context of a past time, a bygone era, where birds and wildlife were considered commodities whose vast numbers could not be depleted. The role of man as a hunter was validated. “Birds and animals were sustenance in rural communities, income to market men, valued on the table by upper class gourmands, and shot by all classes of society for sport,” according to Sawyer.

What was market hunting and who were the hunters? Market hunting, as it came to be called, developed over time and was dependent on changes and developments in human society. Hunting provided an income and food, worth a lot of money during lean times in Texas. Who better to document this subject than another waterfowl hunter with a scientific background, such as R.K. Sawyer, local petroleum geologist and manager of the Thunderbird Hunting Club in Matagorda.

Sawyer describes how the waterfowl trade developed, just like the state of Texas itself, beginning when huntsmen provided wild game as food for armies, port settlements, and towns. These were not sportsmen: their goal was to bag as many birds with one shot and use any means, day or night, to harvest wild game. Markets developed for birds and other game sold for food to hotels, boarding houses, and restaurants, then progressed to the sale of all other parts - skins, eggs, and feathers (used in hats, beds, pillows, quill pens, and clothing), then waterfowl rendered for cooking oil, and gathered for specimen collections. All of this was legal and without limits of any kind.

The numbers and species that were killed is more than I can comprehend. Anything that could be killed was consumed or used in some manner - hummingbird, our state bird, warbler, whooping crane, plover, robin, curlew, swan; the list goes on. Of course, some people noticed that waterfowl were being decimated and objected. Thus, began the conflict between sportsman, market hunter, naturalist, and lawmaker that has progressed to the current game laws and their enforcement.

R.K. Sawyer delivers the facts unemotionally, without moralizing or assigning blame/guilt, allowing you to draw your own conclusions. In *Texas Market Hunting*, he provides concise descriptions and amazing pictures and illustrations of these events along the Texas coast. We cannot change the events of the past, but we can learn from them and apply these lessons now and in the future. This brings to mind the quote attributed to writer and philosopher George Santayana, "Those who cannot remember the past are condemned to repeat it.” It is painful to remember that part of our past, but very necessary for our future and the future of birds and all wildlife.



Due to Camp Wild, we will meet on **Monday, June 10**, to discuss the first half, pages 1-127, of *The Naturalist Theodore Roosevelt*, by Darrin Lunde. Join us in exploring the fascination that one man had with the natural world and how that fit with the developing wildlife conservation movement of his age. We will meet on **Monday, July 8** due to the holiday to conclude our discussion of this book with the second half, pages 128-255.

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!

Attwater's Update! by Sandy Parker

In April, members of the 2019 chapter training class excitedly witnessed the delightful display behavior of the male Attwater's prairie chicken at the Houston Zoo's captive breeding pens located at Johnson Space Center. The numbers of birds in the wild and in the captive breeding programs are currently at one of the highest levels we've seen. There are 102 total birds in the wild, with 52 at the Attwater's Wildlife Refuge - up from 12 birds just a year ago. The Texas Nature Conservancy property in Goliad has 50 birds - up from 14 birds last year. Just last year, in 2018, the Zoo released 223 birds to the wild population.

The total number of birds in the captive breeding programs at the Houston Zoo, Fossil Rim Wildlife Park, and the Caldwell Zoo is 129 birds. That's up from 117 in 2018.

As of this article, 260 eggs have been produced at the Houston Zoo facility and chicks are due any day now!


Photo by Gene Fisseler

Breeding and egg production can continue to the end of May. Let's hope this year is another successful one for this iconic and critically endangered Texas-only bird.

Changes to VMS by Patti Trimingham

TPWD recently applied some changes to TXMN VMS system.

- When reporting service, first select the opportunity; the long description of the Federal category and the long description of the opportunity will appear. If the description does not match the work you completed, you may be using the wrong opportunity. A list of the opportunities, with description, is available on our website at: https://txmn.org/gbmn/files/2019/02/2019-0224-Opportunities-for-hand-out.pdf
- You only have 45 days from the date of service to record your hours. This has been in effect for a few years, however, the admins used to be able to enter your hours if they were older than 45 days. Now the admins will not be able to enter your older hours. The Chapter president can request a change/addition if a hospitalization or family emergency occurred.

It is good practice to enter your service hours at least weekly. Some ideas to help you remember are to write your hours in a calendar or in your phone and/or set a weekly alarm to remind yourself to enter your hours.

If you have any questions or need assistance in entering hours, please email the membership team at gbacmemberrpt@gbactmn.org

The Midden Deadline

for the next issue

June 22

If you have Advanced Training or Volunteer Opportunities, please submit information to Cindy Liening, calieni272@msn.com.

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.

Texas AgriLife Extension Service
4102 B Main (FM 519) Carbide Park
La Marque, TX 77568

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@ag.tamu.edu.

Midden Team

Diane Humes, Managing Editor
Madeleine K. Barnes
Verva Densmore
Chuck Snyder
Lana Berkowitz
Carolyn Miles
Jennifer Trandell

On Pluto, It's Been Spring Since1990 - Earth has the best springtime in the solar system.

by Marina Koren

(This article was originally published on the website TheAtlantic.com and is republished here with The Atlantic's permission)

Ah, spring.

The season of vibrant flowers lining the sidewalk on the commute home, their gentle fragrance wafting into the air. Of sunshine that calls for a light jacket instead of a bulky coat. Of the passionate urge to clean everything in sight.

Outside The Atlantic's Washington, D.C., headquarters, it's about 43 degrees Fahrenheit (6 degrees Celsius)—not warm enough for open-toed shoes, but still more pleasant than, say, a polar vortex. I've been longing for this day, and it got me thinking about spring on other planets, and whether it even exists.

We owe the seasons to Earth's axis, which stays tilted at about 23 degrees as the Earth loops around the sun. But the orientation of the planet's hemispheres in relation to the sun changes; different parts of the Earth lean toward or away from the sun at different times of the year, and receive varying amounts of sunlight.

But how do other planets work? To find out, and also to procrastinate my spring cleaning, I reached out to some scientists who spend their days thinking about other worlds.

Mercury

"Mercury doesn't really have anything approaching spring, or any season for that matter," says Paul Byrne, a planetary geologist at North Carolina State University. The planet's axial tilt, a fraction of a degree, is negligible. "The amount of daylight at a given latitude on Mercury is essentially fixed during the entire year."

The daylight is relentless and scorching. But the orientation produces a rather cool phenomenon. "It lets Mercury have regions of permanent shadow near its poles that are never sunlit, and lets ice be present in those regions—even on the planet closest to the sun," says Nancy Chabot, a planetary scientist at the Johns Hopkins University Applied Physics Laboratory.

"It's one weird little planet," Byrne adds.

Venus

"There is no springtime on Venus, nor any other season—no seasons in hell!" says Allan Treiman, a scientist at the Lunar and Planetary Institute.

It's difficult to sugarcoat the environment on Venus. Surface temperatures are a sizzling 870 degrees Fahrenheit (470 degrees Celsius), hot enough to melt lead, all year round. Like Mercury's, Venus's axis isn't tilted enough to produce a noticeable difference.

But the real reason the planet doesn't have any seasons is its atmosphere, which is choked with clouds. "The clouds are so thick that its surface gets nearly no light or heat from the sun. Nearly all the sunlight and heat are absorbed by clouds, which then radiate heat down to the surface—the famous greenhouse effect," Tremain says. "Venus clouds circulate faster than the surface does, so all the greenhouse heat is spread around the planet, whether it's day or night."

That's not all. "To top everything else off, Venus' day is longer than her year," says Vicki Hansen, a scientist at the Planetary Science Institute. (It takes 243 Earth days for Venus to rotate once on its axis, but 225 Earth days for the planet to loop around the sun.) "So if she had spring, it would be hard to say what day it happened."

Mars

Mars's axis is tilted slightly more than Earth's—about 25 degrees —which means the planet experiences distinct seasons, too. In fact, like the Northern hemisphere here, the Northern hemisphere on Mars is entering spring now.

"The Northern hemisphere is starting to heat up; the Southern hemisphere cooling off—just like on Earth," says Don Banfield, a scientist at the Cornell Center for Astrophysics and Planetary Science.

Well, not just like on Earth. Orbits affect seasons, too; the Martian year is twice as long as a terrestrial year, so the seasons stretch out longer. There are seasonal trends, such as summer dust storms, "but without rain and plants, they aren't quite as obvious," says Banfield.

Jupiter

"Jupiter does not have a springtime," says Cheng Li, a scientist at NASA's Jet Propulsion Laboratory. Like Mercury, Jupiter's axial tilt is too small to matter.

Saturn

Saturn does have spring: Its axial tilt is similar to that of Earth and Mars.

"Saturn is warm in the summer and cold in the winter," says Leigh Fletcher, a planetary scientist at the University of Leicester. "The clouds and chemicals respond to these changes in sunlight. Perhaps the best example is the color of Saturn's atmosphere, which shifts from blue hues in the winter—relatively clear skies with very few hazes—to golden hues in summer—a more

smoggy atmosphere with lots of hazes."

Saturnian spring also provides the most visibility for a massive, hexagon-shaped storm at the planet's north pole that has mesmerized scientists for years. Some parts of Saturn can even experience miniature versions of seasons, thanks to its shimmering rings.

"A fixed point in Saturn's atmosphere would experience additional periods when the rings shade the sun," says Mike Wong, a planetary scientist at the University of California, Berkeley. "We actually have something like this at my house, because the neighboring building has a billboard on top. From a certain date in November to a certain date in February, our roof is in constant shade because the billboard blocks the sun, so our house gets colder."

Uranus

With a 98-degree tilt of its axis, Uranus basically spins on its side. This alignment means the planet experiences the most extreme seasonal contrasts in the solar system.

"The poles get a great deal of illumination from an overhead sun that barely seems to move in the sky during local summer and a great deal of darkness in winter," says Glenn Orton, a scientist at NASA's JPL. "As spring begins, the sun is virtually always at the horizon for anyone living at the poles and virtually straight overhead for a Uranian in the low-latitude tropics." (We should clarify: These are fictional Uranian residents. Alien life hasn't been discovered there.)

During spring, a giant white cap emerges over the north pole, standing out against the planet's usual blue hues. Scientists suspect the warming temperatures produce atmospheric changes.

This far out in the solar system—where orbits are vastly longer —seasons stretch out for years. A Uranus spring lasts 21.

Neptune

Spring on Neptune is twice as long. The planet experiences distinct seasons, but "I don't think we've been able to observe Neptune long enough with enough detail to say for sure how spring in one hemisphere differs from any other season in terms of atmospheric activity," says Anne Verbiscer, a planetary scientist at the University of Virginia.

Pluto

"Why yes, it's springtime on Pluto right now, at least in the northern hemisphere!" says David Grinspoon, a scientist at the Planetary Science Institute. "And it has been since 1990."

(Please don't overthink the inclusion of Pluto on this list. Scientists have spent years arguing over the correct categorization of this celestial body. For some of them, the 2006 decision to reclassify Pluto as a dwarf planet is not the final word. We'll leave the debating to them.)

Pluto's orbit around the sun is highly elliptical. "The distance to the sun is quite different for the same season in the south versus the north," Grinspoon says. "This creates asymmetrical and extreme climate behavior where, over the timescale of the seasons—which are many decades long—the atmosphere goes through the magnitude of changes that on other planets we would call climate changes."

Spring sounds mild compared with colder seasons. Without enough exposure to sunlight, Pluto can get so cold that its atmosphere freezes and falls on the surface. "You can imagine what life would be like if we had that experience on Earth," says Bob West, a scientist at JPL. "The air we breathe and which sustains all life on the dry land would form crystals of water, oxygen, nitrogen, and carbon dioxide and fall to the ground as snow, leaving a near vacuum where once there was air."

Wow. A little spring cleaning doesn't sound so bad.

Spring in Texas (much prettier than Pluto)


Photo by Susan Conaty


Photo by Patti Trimingham

June and July Activities

ADVANCED TRAINING OPPORTUNITIES

Chapter Meeting – June 6
Oyster Reef Ecology and Restoration in Galveston Bay
Presenter – Dr. Laura Jurgens
6:15 Social, 7:00 Meeting, 7:30 Speaker
Extension Office*; 1 AT hour

Ecology Still Matters – Part 3 – Saturday, June 22
9:30 – noon; 2.5 hours AT
Location: Extension Office*
Presenters – Dr. Cindy Howard
Register with Emmeline Dodd txdodd@aol.com

Green Fire Movie: Life & Work of Aldo Leopold
Wednesday, August 14; 9:30-noon; 2.5 hours AT
Location: Extension Office*
Discussion Leader: Madeleine Barnes
Register with Emmeline Dodd txdodd@aol.com

Ongoing
Galveston Island State Park
10am 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. Extension Office*
10am-noon; 2 hours AT
Contact: Elsie Smith (409) 392-7003
See Pg. 5 for meeting dates and books.

STEWARDSHIP OPPORTUNITIES

Ongoing Activities:
Mondays – Galveston Island State Park, Contact: Chatt Smith chattsmith@gmail.com

Tuesdays –
- Sheldon Lake 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: Charriss York cyork@tamu.edu

Thursdays –
- Stormwater Wetland Team, every Thursday, 9am - noon. Contact: Christie Taylor cctaylor@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 - 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.

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, 1-3pm
Communication – Meets quarterly, check calendar
Midden Team – Monday June 24, 9-noon

TEXAS A&M AGRILIFE EXTENSION

Sea Grant Texas
Science At Work For Texans
http://TexasSeaGrant.org
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*Extension Office = Texas A&M AgriLife Extension Service – Galveston County Office (Carbide Park)