Galveston Bay Area Chapter - Texas Master Naturalists June 2022

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Plastics and Litter on the Texas Coast

By

Celeste Silling
Gulf Coast Bird Observatory

At
Extension Office*

President's Corner by Pam House

It occurred to me recently that our master naturalists could be described (at least with a loose metaphor) as demonstrating two types of evolutionary change. Convergent evolution is the independent development of similar traits or features in unrelated or distantly related species or lineages. Homology results in parts of various organisms that have arisen from similar basic structures but now perform different functions.

An example of convergent evolution would be the wings of a hawk, and the wings of a dragonfly. Each derives from a very different evolutionary tree, but the function of each is to allow the organism to fly.

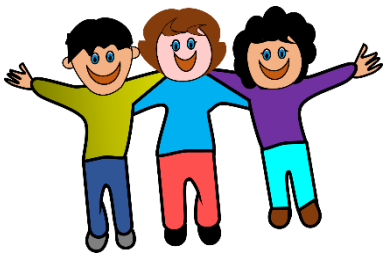
Examples of homologous evolutionary structures can be found in plants. Pine needles in fir trees, spines on a cactus, the petals of the poinsettia and the trap of the Venus fly trap all have different functions. However, they are all modifications of a leaf derived from a common ancestor.

As I have observed our new class in their Thursday sessions, I have seen a wide variation in the paths that have brought each person to want to become a part of our community. Whether young, old, couples, singles, teachers, students, already expert, or simply open to gaining new knowledge – all are *converging* with a passion to join our cohort to protect and preserve the bounty of nature.

The new master naturalists will share a beginning via their classes together, a few field trips, and a common grounding in our programs and principals. After that beginning together, their choices will lead them to disperse into a volunteer experience that will vary widely. The kind of work done by each may appear different, but each will be a Galveston Bay Area Master Naturalist.

How wonderful! Welcome to the class of 2022. We are excited to have you join us in flight, and to be led by you to new shapes and functions of our leaves.

In June, we can look forward to the whole chapter welcoming the new class face to face. For the first time in many a moon, our chapter meeting will be in person. Details will come by email, but on June 2 we anticipate the building opening at 4:30 with a social gathering and good food about 5:30 pm. Business will begin about 6:00, and the AT presentation will begin at 6:30. We hope this will allow those who wish to attend in person to avoid travelling through construction in the dark. We also will plan to stream the program for those who would wish to participate that way. The return of "food, fun, and friendship" appears to be just around the corner. Hurray!



Audubon in Texas by Sheron Evans

John James Audubon was born 1785 in Haiti and became one of the most famous naturalists and wildlife artists in America. He was raised in France and educated by his father's wife. He learned his craft from working with people in taxidermy and ornithology. Although we usually associate Audubon with New York, where he died, or New Orleans, where he lived off and on for many years, Audubon travelled to Texas and studied the mammals and birds here in our backyard.


Photo courtesy of Wiki Commons

In 1803 he moved from France to Pennsylvania to manage an estate his father owned. His father did not want his offspring to fight in Napoleon's wars. In 1808 he married a neighbor's daughter, Lucy Bakewell.

They then moved to Kentucky, where Audubon had trouble making a living and was jailed for debts, then to Cincinnati, Ohio. Lucy supported the growing family by teaching. In 1821, Audubon and family moved to New Orleans.

In 1837 Audubon and son John W. travelled from New Orleans to Galveston in the Republic of Texas. Audubon and his son spent two weeks exploring Galveston Island, then visited with President Sam Houston in Houston on Buffalo Bayou.

Much of Audubon's diary from his trip to Texas was lost, but a bit of it has been reconstructed.

"May 15. We landed at Houston, the capital of Texas, drenched to the skin…The Buffalo Bayou had risen about six feet, and the neighboring prairies were partly covered with water." That was from spring rains. The big storm of 1837 did not arrive for 4 more months. But it does sound a bit familiar to us here in the Bayou City, doesn't it?

"We approached the President's mansion, wading through water above our ankles. This abode of President Houston is a small log house, consisting of two rooms, and a passage through, after the Southern fashion. The ground floor was muddy and filthy, a large fire was burning."

Audubon observed that Houston was dressed in a fancy velvet coat and trousers trimmed with gold lace. He was welcoming and received them kindly. He also noted that Houston was a tall, strong looking man, with a scowl that was forbidding and disagreeable.

Audubon remarked on seeing a liberty pole on which was mounted a Texas flag and noted that it had been erected on the one-year anniversary of the Battle of San Jacinto. The men shared a grog and Audubon wished success to his new republic. "Our talk was short, but the impression which was made on my mind at the time by himself, his officers, and his place of abode, can never be forgotten."

Audubon had trouble getting his *Birds of America* project supported in America. So, in 1837 he travelled to England and Scotland to oversee its completion and quickly gained success. There is only one plate in *The Birds of America* from a Texas specimen – the Texas Turtle Dove.

During the 1840's he worked on his second big project – *The Viviparous Quadrupeds of North America*; issued as lithographs 1845-1848 containing more plates from Texas specimens than *The Birds of America*. About half the drawings were by Audubon, the other half by his son John. Drawings by John James Audubon include the orange-bellied squirrel, the cotton rat, the collared peccary, and the black-tailed hare.

John James Audubon died at age 65, in New York, New York in 1851.

What's a Midden and Why is the Newsletter Called That? by Meade LeBlanc

A midden is:

A) An old dump of waste, including shells, bones, pottery fragments and other ecofacts
B) A rich resource for archaeologist to study people of the past
C) A word from Danish meaning mound
D) A pile of debris that an octopus makes in front of its den to conceal the entrance
E) The name of the Galveston Bay Area chapter's bimonthly newsletter
F) All of the above

If you answered F, you are right!

Midden mounds are found all over the world and provide much information about the diet and habits of the people who created them. As people tossed their discarded

items, the mounds grew. Over time, wind, water and foraging animals added layers of sediment.

Study of the resultant matrix can provide information about past climate and seasons. Sometimes even individual "dumps" of material can be identified and analyzed. It is important to note that the middens are created by human activity and not the result of wind or tides.

The name "midden" originated with Danish zoologist, botanist, geologist and archaeologist, Japetus Steenstrup, who used the phrase *kokkenmoddinger*. *Kokken* means kitchen, and *moddinger* means mounds. Steenstrup studied prehistoric mounds in Denmark in the latter half of the 19th century, and the English name midden, derived from the Danish, is now used internationally.

Shell middens are mainly mollusk shells, as the name implies. Some shell middens are found in places where mollusks were processed before taking the food to another place. Other shell middens were designated places near villages to dump all refuse. Still other middens were associated with a single living space; each household would dump its refuse directly outside the house.

Photo by Mikel Zubimendi, Wikimedia Commons

Shells have a high calcium carbonate content, making shell middens alkaline. Alkalinity slows the rate of decay caused by soil acidity, leaving a relatively high proportion of organic material (food remnants, organic tools, clothing, human remains) available for study.

Shell middens found in coastal or lakeshore zones are thought to be primarily the creation of nomadic groups or hunting parties. And that brings us to Armand Bayou and Galveston Bay.

There are middens scattered around the area, built up over thousands of years. A number of distinct Native American groups lived in the area for approximately 8,000 years. It is believed they lived a seasonal nomadic lifestyle, visiting Armand Bayou and the bay areas during the spring and summer.

Studies of the middens reveal oyster, clam, bison, deer, gray wolf, raccoon, gray squirrel, opossum, box turtle, soft-shelled turtle, snake, drum, catfish, alligator, waterfowl, bobcat, and rodent remains. The clams were particularly desirable because they were easy to harvest – no chasing mammals on four legs – and easy to prepare by tossing them on a fire.

By the 1850s, the Native Americans of the Galveston Bay area disappeared, a result of colonization, disease and combat. But there are a dozen identified archaeological sites on Armand Bayou and its tributaries: campsites, middens, and one burial site. For more on this fascinating subject, read *Last of the Akokisas* on the Armand Bayou Nature Center website: www.abnc.org/nature-blog/last-of-the-akokisas.

Now we come to our chapter newsletter, a repository of knowledge and a historic record of our journey. The newsletter has been called the Midden from the first issue in February 2001 when Doris Heard, a member of the first class and vice president, suggested the name and it stuck.

Reading previous issues is like uncovering layers of information, written by members from the past and present, reflecting current interests and timeless concerns.

Our current editor, Diane Humes, wrote that her husband says, "Just bury it in the Midden." And so we have, for 20 years, and hopefully for many more.

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.

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The Midden is posted on the GBAC-TMN chapter website: https://txmn.org/gbmn/ 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.

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Sylvan Beach Spring Hawk Watch 2022 by Diane Humes

Our Sylvan Beach Spring Hawk Watch, begun in 1996 by Dick Benoit, has successfully completed its season. With 60+ watchers, someone observed the skies along our stretch of Galveston Bay for migrating raptors every day from March 1 to April 30, 2022. Many thanks to the dedicated counters who collected valuable data which was sent to the Hawk Migration Association of North America (HMANA). These efforts were ably led by Lynn and John Wright.

The hawks certainly migrated, but not necessarily over our heads. Lynn reported that, "the number of hawks seen and counted at the Sylvan Beach Spring Hawk Watch were about average for the 27 years of the hawk watch, but the number of broad-wings was way above average and the Mississippi kites way below. Four days accounted for 89% of the 18,485 raptors counted during the season – March 23, 24, 25, and April 9. Each of those days had winds with a westerly component; three of these had north-west winds."

Sunday Team, photo by John Wright

Those four exciting days are what we like to see - hopefully next year!

Hawk Migration Spanish Style by Diane Humes

Ask anyone on the Sylvan Beach Hawk Watch Team and they will tell you about the amazing spectacle of hawk migration - Serengeti of the Sky. On our watch, we have seen and counted a small subset of migrating birds - 17,563 broad-winged hawks (BW), 114 Mississippi kites (MK) and 78 Swainson's hawks (SW), in addition to our SW pair, lovingly known as Sam and Sheila, who have migrated no further than Little Cedar Bayou Park.

At other locations in the Americas, dedicated watchers see, identify and count astounding flights of raptors; in Tolima, Columbia, watchers counted 403,750 BW and 313,532 SW flying north. A lot of the birds continued to Kéköldi, Costa Rica: 319,715 BW and 144,672 SW, plus 73,079 MK - more likely to winter in Central America - for a whopping total of >1 million migrating raptors!

Hawks have choices about where they fly and in Bentsen, TX watchers have counted 34,188 BW, 751 SW and 3657 MK. It seems clear that "our" birds have not necessarily turned right at Bentsen on their journey north. Soaring birds depend on rising air currents - thermals forming (mostly on land) - to give them lift with the least amount of energy expended. They avoid traveling over large water bodies; raptors observed at Sylvan Beach usually do not fly across Galveston Bay.

Crossing the Panama Canal is no obstacle for birds traveling between North and South America. Migrating raptors in Europe, however, flying to or from Africa, have few choices to avoid crossing water. They must either cross the Straits of Gibraltar, a 14km passage between Morocco and Spain, or, in the eastern Mediterranean, cross the Bosphorus north of Istanbul - shorter crossing, but much longer flight. (Galveston Bay is twice as wide, at 27km.)

The cliffs of southern Spain around the Straits of Gibraltar are famous for huge flights of migrating birds making the crossing, so, I took a week off of our hawk watch to travel with a tour group specifically focused on the spring migrating raptors of Andalusia. The target list included 20 species of raptors unknown to a North American birder. I could see and count them and, fortunately, had good guides to help identify them!

The Straits of Gibraltar are bordered on both sides by about 20km of beaches and high cliffs as the Mediterranean Sea empties into the Atlantic Ocean. Currents are strong, the water is deep (presumably) and crisscrossed by large ships, with high winds usually blowing either from the east or west, while the birds in spring are trying to fly north. For strong fliers like peregrine falcons, this is no trouble, but soaring birds must wait for favorable conditions to avoid being blown out to sea in either direction. They need light winds, no rain, and enough sun to provide lift to reach over the tops of the cliffs.

There are other obstacles. Spain is dedicated and well on its way to becoming energy independent. By 2020, it had produced 43% of its electricity from renewable sources, is on target to reach 75% renewable energy by 2030 and expects to reach 100% renewables by 2050. Given the reliable wind resources of coastal Spain, its hills are now home to thousands of the 21,400+ wind

turbines in the country. In fact, wind farms are located just inland from hawk watch sites, which is a cause of concern for the safety of the 250,000 raptors migrating each spring and fall.

The south of Spain is mostly rural, with many large ranches - fincas - and lots of cattle. Cattle range freely, according to custom, including under the turbines. If a cow happens to die near a wind turbine, its carcass will soon attract scavenging vultures, some of the most common migrants.

The four species of Old World vultures - Egyptian, griffon, black (cinereous), and bearded (Lammergeier) rely on eyesight instead of smell to find their meals and have different and complimentary feeding habits. Egyptian vultures - an endangered species - find the carcass and prefer the soft parts like eyes; the stronger griffon vulture tears the flesh and eats the guts. The black vulture gets the tendons and the Lammergeier, a huge raptor extinct in Spain for over 100 years, cracks the bones by dropping them from great heights. So, a congregation of vultures around a dead cow could attract a large crowd in mortal danger from turbines.

The Spanish solution: post watchers on the hillsides who can stop the turbine blades to keep the birds from danger. They will also call the rancher to remove the dead cow - usually bury it - so as not to attract vultures. We saw watchers on the hill, and they did stop the turbine for Egyptian vultures. You might say that we were watching the watchers!


Photo by Allan Treiman

Some turbines are more troublesome to wildlife than others. We saw some blades painted black - an experiment to see whether birds could recognize them better. Of course, they may see them perfectly well, but soaring birds cannot always hit the brakes. As far as we could tell, wind farm companies, hawk lovers and the government are working together to find the best solutions for preserving wildlife and providing renewable power.

Coming from the Texas Gulf Coast, I discovered the fascinating history of southern Spain. We visited a Roman city, Baelo Claudio, once a center for tuna fishing and salting and *garum* production - an ancient version of Worcestershire sauce - in the second century BC. We scanned the beaches at the mouth of the Guadalquivir River, gazing out at the Atlantic from Sanlúcar de Barrameda, the last point of land for Christopher Columbus and Magellan on their voyages to America.

The large ranches - fincas - have been historically self-sufficient ecosystems. Ranchers raise bulls for fighting and cattle, pigs, olives, vegetable crops and cork oaks, a system providing habitat for birds and wildlife. This centuries-old relationship was disrupted by the mad cow disease which erupted in England. For a time, farmers were required to take dead cows to incinerators; griffon vulture numbers plummeted from near starvation. Today, their populations are 40,000 birds and growing with resumption of ancient customs.

But did we see lots of migrating raptors? Yes and no. The weather was cold, rainy, with strong east winds. From the clifftop watch site above the lighthouse - a muddy wide spot between road and drop-off - we could see Morocco appearing and disappearing in the clouds across the strait. The birds struggled, taking up to 20 minutes flapping to cross. We watched as some got thermal lift from spots of sunlight on the water. Arriving at the shore, they skimmed over the cliff, giving us pretty good looks. On our best day, we watched for about an hour as at least 3000 migrants of 11 species - black stork, white stork, black kite, griffon vulture, Egyptian vulture, snake eagle, common buzzard, Montagu's harrier, marsh harrier, sparrow hawk, and common kestrel,- made the crossing. By day's end, the official counter stationed on site had tallied over 13,000 birds.

We traveled to Spain to see birds and by week's end, thanks to our local guide, Javi Elorriaga and his intimate and encyclopedic knowledge of the area, we had seen over 100 species - little swifts in the boat dock roof at Sanlúcar, Spanish Imperial eagles at his friend's La Janda finca, eagle owls in the Cadiz modern art museum, red knobbed coot in the stinking pond behind a warehouse, bumble-bee orchids on the roadside, and the only common bulbul in all of Europe in downtown Tarifa.

Our founding father, Dr. Barron Rector, said, "If you can't name it, you can't see it." Javi's sense of place encompassed their daily and seasonal habits, history and movements - so much more than names. If we aspire to understand migration and to protect and restore our heritage, we also need such deep knowledge of our own place.

An Introduction to Compost Tea by John Jons

When I began gardening I heard about the value of compost tea, but I never saw much data to support the value until I started dealing with professional nursery people and landscapers.

Some of these gardening professionals used compost tea as an alternative to chemical fertilizers, pesticides and fungicides and even had what they considered proprietary and multiple special purpose compost tea formulations for specific plants and applications. Furthermore compost tea may be even more appropriate for growing native plants.

Compost tea is concentrated liquid fertilizer made from steeping biological active compost in aerated water. It contains microorganisms that enhance plant health, suppress plant diseases, provide plant nutrients, reduce fungicide and fertilizer requirements. Plus it is nutritionally rich and can help provide plants with beneficial soil bacteria and fungi.

There are two kinds of compost tea, bacterial and fungal dominant. The bacterial dominant compost tea is best suited for annual plants, flowers, vegetables and grasses. The fungal dominant compost tea is best for perennial plants, woody plants, shrubs and trees.

Making or brewing compost tea is a relatively simple process. The recipes I use make 5 gallon (19 liter) batches of compost tea. For a YouTube video on how to make compost tea, see *An Introduction to Compost Tea*, https://youtu.be/j7tOPJrtmTU

The recipes have four steps. You will need a 5 gallon (19 liter) bucket; an aerator (air) pump, that ideally is capable of pumping at least 570 gallons per hour or 38 liters per minute; and an (air) bubbler. The bubbler can be aquarium air stones or a custom-made bubbler product. The bubbler needs tubing to connect it to the aerator pump. You also will need a compost "tea bag," which is a porous bag with at least a 400-micron mesh that can hold at least 2 pounds of compost. The compost "tea bag" can be a paint strainer bag or a custom-made compost tea bag.

Steps:

1) Select the right compost tea recipe for plants that you intend to grow. There are three basic compost tea recipes: bacterial dominant, fungal dominant or an equal ratio of bacterial and fungal compost tea.

Bacterial Dominant Compost Tea.

- 5 gallons (19 liters) of dechlorinated or reverse osmosis water.
- 3-4 tablespoons (45-60ml) of liquid black strap (unsulfured) molasses.
- 4 teaspoons (23g) of dry soluble kelp (seaweed) or 2 teaspoons of liquid kelp.
- 3-4 teaspoons (15-20ml) of fish emulsion.
- 1.5 pounds (700g) of bacterial compost or vermin-compost (worm castings).
- Brew for 12-18 hours at 65-75 Fahrenheit (18-24 Celsius).

Fungal Dominant Compost Tea.

- 5 gallons (19 liters) of dechlorinated or reverse osmosis water.
- 4-5 teaspoons (20-25ml) of fish hydrolysate. Let it sit in the water for 10-20 minutes.
- The add 3-4 tablespoons (50ml) of humic acids.
- 2 teaspoons (10ml) of yucca extract.
- 4 teaspoons (23g) of dry soluble kelp or 2 tablespoons of liquid kelp.
- 2 pounds (900g) of fungal compost.
- Brew for 16-24 hours at 65-75 Fahrenheit (18-24 Celsius).

Equal Ratio of Fungal and Bacterial Compost Tea.

- 5 gallons (19 liters) of dechlorinated or reverse osmosis water.
- 3-4 tablespoons (45-60ml) of humic acids.
- 4 teaspoons (23g) of dry soluble kelp or 2 teaspoons of liquid kelp.
- 3-4 teaspoons (15-20ml) of fish emulsion.
- 1.5 pounds (700g) of a mixed 1:1 ratio of bacterial and fungal compost.
- Brew for 16-24 hours at 65-75 Fahrenheit (18-24 Celsius).

2) Brew the compost tea by placing 5 gallons (19 liters) of dechlorinated or reverse osmosis water into a bucket. Then mix the specific (bacteria or fungal dominant or equal ratio of each) recipe's microbial food and nutriment ingredients into the water. Do not add the compost as this will added in the next process step.

3) Insert the bubbler connected to the aerator pump with tubing and the compost tea bag containing compost into the bucket of water. Try to suspend the compost tea bag in the center of the bucket of the water to allow the bubbles to go through the bag.

4) Turn on the aerator pump and start brewing the compost tea by bubbling air bubbles through the water and the compost team bag for 12-24 hours, per the specific compost tea's recipe. While brewing the compost tea, foaming may occur. Some ingredients

(like molasses) will initially make foam, but this will go away. A few hours into the brew more foam may be present. This indicates a bacterial bloom has occurred. This is a good sign. The brewing compost should have good earthy or sweet smell. If it smells rotten or putrid it has gone anaerobic (loses oxygen) and should be discarded. If the compost tea mixture has fish ingredients, it may smell fishy, but this smell will go away as the microbes ingest the fish.

Do not brew in the sun. Avoid brewing for more than 24 hours as the compost tea may develop organisms (protozoa and ciliate) that will eat the good bacteria and fungi. Use the compost tea as soon as you brew it, as it will go bad (turns anaerobic). If it goes bad as indicated by a bad smell, do not use.

The compost tea can be used:

- At every watering or just weekly.
- For soil preparation as a soil drench
- As a foliar feed by being sprayed on to the plant's leaves.

You can't overdose with compost tea unless you are simply over-watering. And finally just keep in mind that using fungal dominant tea on an annual or bacterial dominant tea on a perennial will not harm it in any way; it's a better/best scenario.

For more compost tea recipes and tips, visit Jons' YouTube channel: www.youtube.com/channel/UCIv9Hx7tcUwmEG6YbX5vTJg.

Haiku Challenge

Need a fun activity to do when stuck inside due to the summer heat? The Midden Team would like to challenge you to write haikus for a future Midden!

A haiku is a form Japanese poetry consisting of three short lines that do not rhyme that traditionally evoke natural imagery .

Famous example from Matsuo Basho:

An old silent pond,
A frog jumps into the pond,
splash! Silence again.

Send your poems to *The Midden* editor, Diane Humes, at treimanhumes@gmail.com

Traditional Structure

- There are only three lines, totaling 17 syllables.
- The first line is 5 syllables.
- The second line is 7 syllables.
- The third line is 5 syllables like the first.
- Punctuation and capitalization are up to the poet, and need not follow the rigid rules used in structuring sentences.
- A haiku does not have to rhyme, in fact usually it does not rhyme at all.
- It can include the repetition of words or sounds

.

(Source: yourdictionary.com)

Little Mighty Mite or Who is Alfred Dugès? by Diane Humes

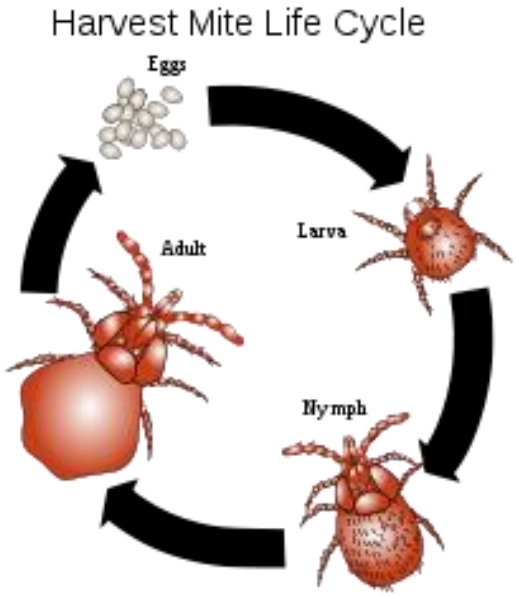
Of the top ten organisms to avoid when out in the field along the Texas Gulf Coast, the list would surely include fire ants, asps, ticks, mosquitoes, snakes - copperhead, cottonmouth, coral - alligators and poison ivy, but the most bothersome of all for the amount of sheer misery inflicted, should be the "little mighty mite", the chigger. "There is no creature alive," writes natural history biologist Nina Bicknese, "that can cause more torment for its size than the chigger."

"Chigger" is the name given to the parasitic larval form of a red mite or harvest mite. In Texas, two species are the most annoying to humans. Both may inhabit the same region, differing in their respective habitats. The most common, *Trombicula alfreddugesi*, likes fields, tallgrass, and weedy areas, wild berry patches, and forest edges, also favorite sites for birds and rodents. *Trombicula splendens* prefers swamps, bogs, rotten logs, and stumps.

Larvae are nearly microscopic - 0.17 - 0.21 mm (1/150 inch) in diameter; therefore, nearly invisible and practically impossible to avoid. Larvae prey on whatever passes by, preferring birds, mammals, including rodents, reptiles, some amphibians and humans – the last is not the preferred hosts, but they suffice.

Harvest mites are grouped with spiders (arachnids) in the family Trombiculidae. Harvest mites have four life stages: egg, larva, nymph, and adult. The larval stage is the only parasitic part of the life cycle. Adult and nymph harvest mites have 8 legs, are red and are gigantic compared to the larvae at 1.3 mm (1/20 inch). They live in the soil and leaf litter, peacefully scavenging for eggs of springtails (tiny soil insects), isopods, mosquitoes and

smaller arthropods, even plants. Harvest mites are, in turn, eaten by small salamanders, beetles, ants, centipedes, larger mites, and spiders.



Adult females lay eggs in clusters in damp soil, under a leaf or around roots, about 15 per day - to about 400 eggs. Egg-laying commences in spring when soil temperatures reach 60^0 F. Chiggers can have one to four generations each year in Texas. Adults die shortly after mating and/or egg-laying; however, adults who are around in the fall may overwinter, and start over the following spring.

After 6 days dormancy the round eggs hatch; the clusters of the 6-legged and reddish larvae need shade and moisture, and, after another 6 days, they need to feed. They climb a stem and lurk in tall grass or bramble bushes for a potential host to pass by. Then they jump on. They are long-legged for their small size and can crawl quickly, reaching from a human ankle to waist in 15 minutes.

They do not suck blood, but feed on skin cells by injecting digestive enzymes - "spit" - and dissolving the tissue, upon which they then feed. They do not actually "bite," but instead form a hole in the skin called a stylostome and chew up tiny parts of the inner skin. This precipitates an allergic reaction within 3 to 48 hours, causing severe irritation and swelling. The intensely itchy welt can irritate for days - long after the larva has died or fallen off!

Larvae may remain attached to a suitable host for 3 to 5 days, unless disturbed. Once finished feeding, they fall off, rest in the soil and change into the nymph forms, which resemble adults. Once past the larval stage they are no longer parasitic but eat plants. Nymphs become adults; the entire life cycle takes 50 - 70 days.

As a naturalist, it is wise to learn how to deal with chiggers. Seasonally, they are most active and bothersome during the warm months from late spring into late fall. They require high humidity, or their bodies will dry out. They are attracted to a host by exhaled carbon dioxide. Of course, you cannot stop breathing, but you can take precautions.

Chiggers can take hours searching for a suitable spot. With people, they wander around the body until reaching a place where clothing touches the skin or creates a constriction. They are looking for thin skin; women and children are more susceptible to the misery inflicted. Welts usually occur at the ankles, waistbands and belts, behind the knees, in the groin and armpits. Chiggers do NOT burrow under the skin.

To help prevent this misery, wear loose-fitting, tightly-woven clothing. Spray shoes, socks, lower legs, waistbands with mosquito repellent or dust with sulfur powder. Tucking pants inside socks and wearing boots might help. A hot shower or bath within an hour or so of potential exposure can remove chiggers; launder your clothing in hot water to prevent re-infection.

Once welts occur, stay calm. Treat symptoms with antihistamines and/or hydrocortisone containing lidocaine to control itching. The nail polish treatment is a myth, since the chigger is long gone once the itching starts. Itching can last up to two weeks, hopefully less. Keep welts clean to prevent infection. Swear to never get chiggers again! Count your blessings - no North American species causes serious harm, but an Asian species, *Leptotrombidium deliense*, carries the causative agent for scrub typhus and can make you very ill.

The common species, *Trombicula alfreddugesi*, the cause of all our scratching, was named for Dr. Alfred Dugès (1826 - 1910), a physician born in France who moved to Mexico in 1852, settling in Guanajuato. He was quite well-known as a naturalist; he collected new specimens, published numerous scientific papers in herpetology, botany, and entomology and directed the local museum, later named the Museo Alfredo Dugès in his honor. He achieved the dream of scientific immortality, as his name lives on with the chigger, reminding me of the old Chinese proverb: "Be careful what you wish for!"

What to Read This Summer? by Diane Humes

Temperature and humidity are already rising; my thoughts veer toward escapist fantasies - how to beat the heat of a Houston summer. Two possibilities: go north or go up - maybe both - and remember to take a couple good books along. Here are a few suggestions for master naturalists.

My first suggestion is a classic book, *The Natural History of Selborne*, by Gilbert White. White was an English country parson (1720 - 1793) and inveterate naturalist. He was interested in every creature of his district, making keen observations of birds, fish, flowers, trees, and weather, recording every detail in his journals for most of his life. This book, published in 1789, was written as a series of letters to fellow naturalists. The first of its kind, it has remained in publication for nearly 250 years; be prepared for Gilbert White to inspire you to closely observe and think more deeply about the nature around you!

Thinking about northern climes led me to a very interesting brand new book, which I have not yet read, *The Treeline* by Ben Rawlence 2022. Rawlence has written about 6 tree species growing around the Arctic, currently advancing on the tundra because of changes in Earth's climate. These trees span a larger area than the Amazon rain forest; will these forests at the top of the world be the last forests on Earth? Reviewers are calling this book the most important nature book of the year.

I buy a lot of books from Amazon, which creates a loop in which Amazon creates helpful suggestions for other selections I might like. One that also sounded promising is *The Lost Pianos of Siberia* by Sophy Roberts. Part travelogue and part history, she tells stories of the people who went to Siberia - or were forced there - taking their pianos along. I have traveled with a piano in a U Haul; it is not easy. This sounds like a very good read for hot summer days.

I have read two other books set in Siberia, which I can recommend whole-heartedly. First is *The Tiger: A True Story of Vengeance and Survival* by John Vaillant and second, *Owls of the Eastern Ice: A Quest to Find and Save the World's Largest Owl* by Jonathan C. Slaght. In each of these books about the foreign natural world so different from here you can feel cold coming from the pages.

The Tiger is hard to put down. It is about Siberian tigers - more specifically, a man eating tiger - their natural history and interactions with humans in Russia's Far East - and much, much more. *Owls*, follows the author on his journeys tracking down the huge and elusive Blakiston's fish owls, in wild locations not that far from the tigers.

These two books will make you forget all about being hot and sweaty, for sure.

In case you prefer not to feel cold, one other new book, *World of Wonders: In Praise of Fireflies, Whale Sharks, and Other Astonishments*, by Aimee Nezhukumatathil, poet, is a delightful treat that can be savored one essay at a time. Her collection about the natural world is lovingly and insightfully written, each essay depicting the ways Earth's inhabitants teach, support and inspire us.

I hope you enjoy some or all of these books. An eclectic mix, to be sure, they span a great distance in time and place, across the world of nature. Enjoy.

Remembering Mark Kramer by Diane Humes

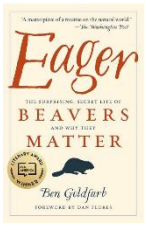
We lost our friend and mentor, Mark Kramer, on March 9, 2022.

Mark lived and worked in Pasadena, TX, fishing and paddling the bayou and knowing its creatures. As Stewardship Coordinator at Armand Bayou Nature Center, Mark taught all of us about the bayous and coastal tallgrass prairies.

Listen to Mark's voice while reading his book, *Armand Bayou Illustrated A Life Along the Bayou*, his legacy to us and the future.

Thank you, Mark.

Heritage Book Study - Review of *Eager: The Surprising, Secret Life of Beavers and Why They Matter* by Madeleine K. Barnes



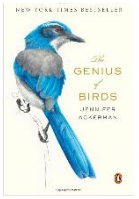
Are you aware that beavers are not a protected species in Texas, so it is legal to kill a beaver if it is considered to be a pest to a landowner? Maybe you are not aware that beavers are in Texas, including East Texas. Maybe you would like to know more about these amazing dam building, ecosystem engineers.

This book's author is Ben Goldfarb, an environmental journalist, who covers wildlife management and conservation biology. He is the Winner of the 2019 PEN/EO Wilson Award for Literary Science Writing for this book. Goldfarb has a Master of Environmental Management degree from the Yale School of Forestry and Environmental Studies and his writings have appeared in numerous publications.

The North American beaver (*Castor canadensis*) were once found in virtually all aquatic ecosystems in North America, from the Arctic tundra to the deserts in northern Mexico. They are thought to have been on this continent some 7 million years since crossing the Bering Strait. According to Goldfarb, they were here as a geological force in their ponded world of "castrocene" before European settlement and trapping. Lewis and Clark and others noted beaver numbers and their amazing impacts in their exploratory journal accounts. That environmental history changed due to subsequent human intervention and onslaught. The fact is that beavers have disappeared from most of the landscape, leaving dire consequences: dried up wetlands, erosion, and loss of habitat. Goldfarb wrote "Conservation biologists refer often to the notion of *shifting baselines syndrome*, a form of long term amnesia that causes each successive generation to accept its own degraded ecology as normal."

What is so important about beavers and why should we care? Let's start with carbon capture. You will be interested in the amount of carbon that can be found fixed in the bottoms of beaver ponds. Beavers, by their actions, double fish survival, clean polluted water (denitrification), increase water retention, especially during drought, and prevent fires and nutrient and sediment runoff. Goldfarb states "beavers have a well-documented ability to abate, absorb and attenuate floods on a vast scale." They are considered to be a keystone species in the riverine environment. You may be familiar with the statement of "build it and they will come." Well, when beavers build their ponds and re-water an area, they create a haven. Diverse life forms, large and tiny, plant and animal, abound in the swampy meadows and slower streams beavers create.

Goldfarb's writing covers a broad spectrum of detail about beavers including many examples of beaver re-introduction and re-wilding and the people and scientists involved. He covers the facts, issues, and opinions of the people who live in those areas, discusses the science and practical applications of technology and addresses misconceptions and impacts, both human and non-human. His style of writing is easy to understand, very descriptive, and includes humorous anecdotes. Goldfarb poses the framework for the larger conservation issue: how we can learn to live and thrive together, allowing "beavers to do the work" in restoring critical wetlands and habitat. This is an excellent book to add to your list.



Due to Camp Wild, our next Zoom AT will be held on Monday, June 13th, to begin our discussion of *The Genius of Birds* by Jennifer Ackerman, pages 1-135, which includes the Introduction and Chapters 1-4. Due to the holiday, we will meet again on Monday, July 11, to close our discussion of this book with pages 137-266, which includes Chapter 5-8. If you want to join us for either or both of these AT opportunities, please contact Madeleine Barnes at Mad2Btmn@aol.com to be added to the list for additional information and to receive the Zoom meeting link and password.

We welcome your participation each month at these AT meetings for two hours usually on the first Monday of the month starting at 10am. 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!

June and July Activities

ADVANCED TRAINING OPPORTUNITIES

Chapter Meeting – June 2; Plastics and Litter on the Texas Coast
Presenter – Celeste Sillin, Gulf Coast Bird Observatory
Building to open at 4:30, dinner at 5:30, chapter business at 6:00, and presentation at 6:30
Extension Office*; 1 hour AT

Jellies, Man O' Wars and Dragons: Some Toxic Marine Life at Our Beaches
Thursday, June 16; 2-3pm via Zoom; 1 hour AT
Presenter – Cindy Howard

Ongoing

Heritage Book Study Group
First Monday of every month via Zoom
10am-noon; 2 hours AT
Contact: Madeleine Barnes 281-474-9406
See page 10 for meeting dates and books.

STEWARDSHIP OPPORTUNITIES

For a complete list of stewardship activities, see our chapter website, https://txmn.org/gbmn/what-we-do/.

EDUCATION - OUTREACH OPPORTUNITIES

For a complete list of education - outreach activities see our chapter website, https://txmn.org/gbmn/what-we-do/.

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.

CHAPTER INFORMATION AND RESOURCES

Calendar - https://txmn.org/gbmn/events/month/ Includes meetings, AT and volunteer activities

Board - https://txmn.org/gbmn/board-of-directors/
Contact information for the Board of Directors. **Board Meetings** – usually first Tuesday of each month (via Zoom), verify on the calendar

Committees - https://txmn.org/gbmn/board-of-directors/
Contact information for the Committee Chairs

Volunteer Service - https://txmn.org/gbmn/volunteer-service/ Volunteer Opportunities

Advanced Training - https://txmn.org/gbmn/advanced-training/

Midden Archives - https://txmn.org/gbmn/ Go to The Midden on the top menu.

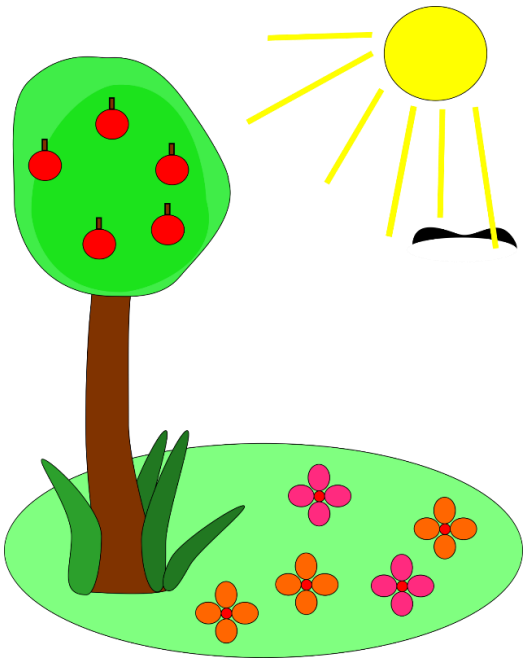
Facebook - https://www.facebook.com/gbactmn

Texas A&M AgriLife Extension

Sea Grant Texas
Science At Work For Texans
http://TexasSeaGrant.org
Master Naturalist℠

***The Midden* Deadline**
for the next issue

June 27



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