

The Midden

San Luis Pass by Chip Morton

Galveston Bay Area Chapter - Texas Master Naturalists

August 2026

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President's Corner by Mary Dobberstine

Summer along Galveston Bay is not for the faint of heart. It brings heat, humidity, mosquitoes, sudden downpours—and a season when the needs of our wildlife are especially immediate.

During these long summer months, Galveston Bay Area Texas Master Naturalists are caring for the wildlife and natural places we love: patrolling beaches for sea turtle nests, braving mosquito clouds during firefly surveys, leading tours, educating at area festivals, and waiting out the rain for community bioblitzes. Whether monitoring, rescuing, educating, or collecting data, our members are helping protect the species that call this region home.

Across our chapter, members are stepping into specialized roles that protect and care for the wildlife. This is peak season for bat rehabilitators, responding to rescue calls and caring for mothers and pups during the busy summer months. As Nicole Cloutier shared, her summer has “gone batty” as she learns more each day about “the wonder of these little flying furballs.” Along with acoustic monitoring and the Bat Bridge Survey, this work helps us better understand and appreciate the millions of bats that share our region.

At Seawolf Park, Janet Diaz shared that volunteers with the Galveston Bay Dolphin Research Program spend early mornings observing dolphins, collecting data, photographing individuals, and talking with visitors and fishers about marine debris, discarded fishing line, and nurdles. Others spend full days on the bay recording information that helps researchers better understand dolphin distribution, health, and the impacts of changing conditions and pollutants.

Members also transport injured birds and wildlife from regional shelters to the Wildlife Center of Houston for veterinary treatment. From baby squirrels and songbirds to hawks, owls, pelicans, raccoons, and possums, these efforts give vulnerable animals a chance at recovery.

This work is hot. It can be wet, buggy, unpredictable, and sometimes heartbreaking. But it is also hopeful, fascinating, and deeply connected to the places and wildlife we love.

Stay cool, stay safe, and thank you for caring for our wildlife and natural resources during the long summer months.

See you at the August Chapter Meeting!

Next Chapter Meeting

August 6

Jellies, Man o' Wars and
Dragons

By

Cindy Howard
Department Chair of
Environmental Sciences

University of Houston Clear
Lake

At Extension Office*

Be the change you wish to see in the world!

Women in Nature: Mollie Beattie by Meade LeBlanc

What does it take to have a National Wildlife Refuge named after you? Unfortunately, the honor is most typically bestowed upon a deceased individual, albeit, one who played a significant role in conservation. Mollie Beattie became the first female director of the United States Fish and Wildlife Service (USFWS) in 1993. Her tenure was brief - less than two years - but very productive. She oversaw the reintroduction of the gray wolf into Yellowstone and the addition of 15 new wildlife refuges, plus agreements between landowners and the federal government for over 100 new habitat conservation plans.

Following her death in 1996, the U.S. Congress changed the name of the eight-million acre Arctic National Wildlife Refuge Wilderness to the Mollie Beattie Wilderness. President Clinton announced, "Under this legislation, Mollie Beattie's name will be forever associated with one of the most wild and beautiful places on this planet, the Brooks Range of Alaska's Arctic National Wildlife Refuge. It is entirely appropriate that we honor Mollie in this way. She was a passionate defender of our 508 National Wildlife Refuges, the largest system of lands in the world dedicated to wildlife conservation. She saw them as places that must be appreciated and honored, as places where we could begin to fulfill our sacred trust as stewards of God's creation. Mollie worked tirelessly, even as her health was failing, to keep these places wild for the benefit of Americans today and for those who will follow us."

Photo courtesy of USFWS Archives



Born in New York in 1947, Mollie was raised by independent, nature-loving women. Her grandmother, Harriet Hanna, was a self-educated botanist and landscape artist. Harriet's home in the country was part animal shelter and part animal clinic, taking care of hungry raccoons and birds with broken wings. Mollie's mother Pat lived in a log cabin on eight acres of land south of Ketcham, Idaho.

A career in conservation, or government, was not on the radar when Mollie graduated in 1968 from Harvard with a degree in philosophy. She moved to Vermont and worked for some years as a newspaper reporter. It was a trip to Colorado that changed her mind. "I went to Outward Bound as a student in 1973 and spent my first night outdoors. I loved it." Outward Bound is a network of outdoor education schools that are designed to teach leadership, teamwork, and character development. She was offered a job and returned for several summers, becoming a mountaineering instructor at the age of 27.

Another chance encounter introduced her to forestry management. She visited the forestry department at the University of Vermont to ask about a class in identifying trees. The professor told her about a new program developed to encourage more women to enter the field. Mollie left journalism behind and earned a master's degree in forestry in 1979. She had a series of jobs in forest management, ranging from developing land management programs to teaching forestry to landowners. In addition, she served as Vermont Commissioner of Forests, Parks and Recreation and deputy of the Vermont Agency of Natural Resources.

When she arrived in Washington DC, to lead the USFWS, she announced her presence by the portrait she hung in the entryway. There had been twelve directors before her - all men - and each was portrayed in a black and white photo wearing a suit and a serious expression. Her portrait was in color and showed her wearing waders, standing in an icy Alaskan river, holding binoculars, and sporting a big grin.

She focused on defending against efforts to weaken the Endangered Species Act, by educating the public about its successes, particularly the recovery of the bald eagle, American alligator and brown pelican- all of which live in the Houston/Galveston area - and debunking rumors along the way. For example, in Texas, she confronted charges that the USFWS had plans to declare 20 million acres as "critical habitat" for "some songbird." It was 30,000 acres for eight threatened species, including the golden-cheeked warbler.

Recognized as a pioneering leader in conservation, Mollie emphasized "land and wildlife management in ecosystem terms." By focusing on ecosystems and not just individual species, she emphasized biodiversity, the interconnectedness of wildlife, habitat health, and human health. Unfortunately, her tenure was cut short when she died in 1996, following a year-long struggle with brain cancer.

In addition to the Mollie Beattie Wilderness in Alaska, she was commemorated by the naming of several other protected areas, including the Mollie Beattie Coastal Habitat Community, encompassing approximately 1,000 acres in Nueces County, Texas, which provides habitat for a variety of shorebirds and wading birds and is designated a critical habitat for the endangered Piping Plover. The state of Vermont renamed the state forest

abutting her homestead "Mollie Beattie State Forest." Probably, Mollie would have been proudest of the Mollie Beattie Internship, offered by Vermont Natural Resources Council, for a graduate student who intended to pursue a career in environmental science or natural resources policy or law - a most fitting way for her legacy to remain alive.

The Big Sit: More Than a Bird Count by Jenny Dudley

By mid-afternoon, the birds had slowed down, the crowds had thinned, and the patch of shade under the pop-up tent was getting smaller by the minute. Nobody seemed eager to leave.

More than 30 members of the Galveston Bay Area Chapter participated in this year's Big Sit on Saturday, May 9 at Exploration Green, including many of our newest trainees. Some came for an hour, others stayed most of the day. Some scanned the wetlands and skies for birds, while others helped identify species, kept the count, or visited with the public.

The idea for hosting a Big Sit at Exploration Green originated with Eowyn Johnson, who suggested partnering with Exploration Green's annual Wetlands Walkabout. After a successful first event in 2025, chapter volunteers expanded the effort this year with an emphasis on outreach, fellowship, and introducing more members to birding.

The day began before sunrise when Carolyn and Jason Miles arrived to listen for owls. No luck. By 7:00 am volunteers were setting up scopes, binoculars, tables, and tents, ready to see what the day would bring.

One of the best parts of the day was watching birders of different experience levels learn from one another. Newer birders practiced spotting birds, learned field marks and bird songs, and gained experience contributing to an official count. More experienced birders shared their knowledge freely, often turning a quick question into an impromptu lesson.

Despite threatening weather in the morning, about 60 visitors stopped by during the day. Many looked through binoculars for the first time or stayed to ask questions about local birds, Exploration Green, and the Texas Master Naturalist program.

Community partners dropped by throughout the day as well, including representatives from Wellby Financial and the Exploration Green Conservancy.

The birding itself was excellent. The team recorded 58 species, including a purple gallinule, swallow-tailed kite, white-faced Ibis, Mississippi kite, roseate spoonbill, and limpkin—not bad for wetlands that were created and are maintained largely by volunteers, including several members of our chapter. Participants were especially pleased to spot a green heron, the namesake of our Big Sit team.



As the day wore on, the event took on the feel of a tailgate party. Camp chairs clustered beneath the tent. Coolers supplied cold drinks. Friends and dogs stopped by. Birders compared notes, swapped stories, and waited for the next species to appear. As the sun moved across the sky, everyone gradually squeezed closer together into the shrinking patch of shade.

When the final results were announced, the team placed ninth in its region, earning a Top 10 finish. It was nice recognition, though nobody was really there for the ranking.

The real success was seeing longtime members and trainees spending a day together outdoors, learning from one another and sharing a place they care about. By the end of the day, the count was complete, the tent was coming down, and there were already conversations about how to make next year's Big Sit even better.

Thanks for all I have learned! by Petra Cravens

I was in the 2025 Galveston Bay Area Chapter -Texas Master Naturalist training class and received my certification by the end of the year. I first heard about the Texas Master Naturalist program from my Sea Turtle Nest Patrol route coordinator. I am so glad I took his advice and applied to the program. I learned a lot. I learned how much I don't know. And I've also made several new friends on the journey.

As I patrol the beaches for sea turtle nests in 2026, I "see" things that I was totally unaware of before I completed the training class. I now observe the birds in the dunes, along the shore and out in the surf (and I'm learning to ID them.) I really "see" the dune grasses and plants, thanks to my volunteering at Galveston Island State Park (GISP), I also see the creatures that live along the Ship Channel jetties. And most importantly, I can now truly call the Gulf my home, all thanks to my training. My

view of the beach is so different now from what it was before and I have being a Texas Master Naturalist to thank for it.

A highlight for me from our class at GISP was catching a nudibranch along with some crabs in one of the sampling containers. I had never heard of a nudibranch and was completely enchanted by this swimming twig. Now I watch for them along the jetty and want to learn more about them. I also look for them when I vacation at other beaches - tide pooling in San Diego was amazing! So, if anyone knows of someone who needs a Texas master naturalist to help with collecting nudibranch data, I would love to volunteer.

I wanted to share how much I have enjoyed being a Master Naturalist in 2026! Thanks very much.

Hot Summers by Sheron Evans

We are cautious when we are in snake territory, we protect ourselves from mosquitoes, and we coat ourselves with sunscreen before we go out in the field. We also need to remember that the summer heat in the Galveston area can be dangerous. Thousands of people have heat-related illnesses in Texas each summer, and there are more than 300 heat-related deaths each year. It is best to avoid the heat during peak times between 2 and 6 pm, but if we are going to be working out in the field or patrolling the beaches, we need to be aware of the danger the heat can cause and learn what to do if we overheat.

First, we need to hydrate - drink water before we go out and during our time outside in the heat. Do not wait to get thirsty. Instead, try to drink 6-8 ounces of water every 30 minutes. Avoid dehydrators such as caffeine, sugar-laden drinks, and alcohol. Snacking on water-heavy and electrolyte-replenishing foods helps - watermelon, frozen berries, citrus fruits.

Our clothing needs to be lightweight and light-colored. Wicking material helps. Cotton can hold sweat and hang heavily on the body. Lightweight polyester, nylon, polypropylene and merino wool are examples of materials that pull sweat away from your body and allow it to evaporate quickly. Shade helps. If you cannot be in the shade, wear a wide-brimmed hat and long sleeves. Use windshield shades on your car when it is parked. It can reduce the temperature inside your car by 15-25 degrees.

Next, know the warning signs of heat-related illnesses and what to do (See [Heat.gov](https://www.heat.gov/)):

Heat Exhaustion - symptoms include cold or pale clammy skin, with heavy sweating, possible dizziness, even nausea. Move to a cooler area and sip water until you cool down.

Heat Stroke - This is a medical emergency. Symptoms include a high body temperature, red, hot skin without sweating, a rapid heart rate, and confusion. If heat stroke is suspected, it is time to call 911.

The National Weather Service issues heat advisories that should be taken seriously:

Heat Advisory - dangerous heat that does not quite meet the extreme criteria of a full warning - usually issued when "feels like" temperature hits 104 degrees.

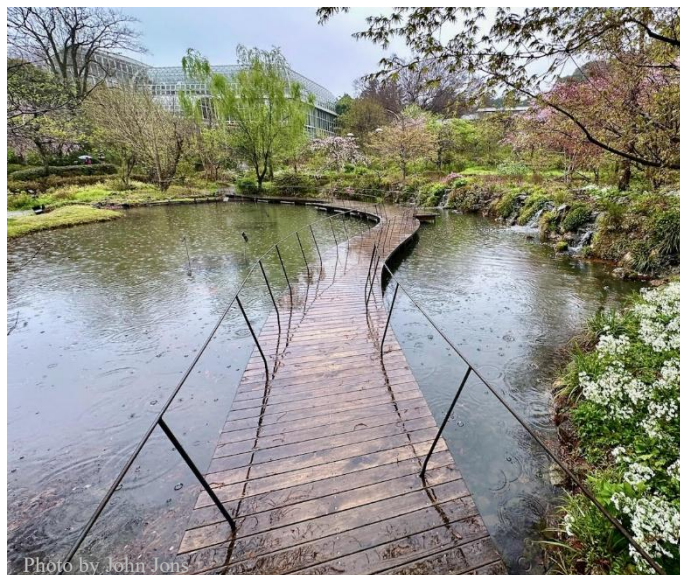
Heat Warning - anything above 107 degrees.

**Remember to drink lots of water
and stay indoors
between
11am and November 1st!**

The Makino Botanical Garden, in Kochi, Japan by John Jons

Whenever I travel internationally, I try to visit local botanical or other gardens, arboreta, and other public landscapes. For a master naturalist, these places are far more than tourist attractions. They are living field guides. They often reveal the ecological character of a region, showcasing native species, local plant communities, and the cultural relationship between people and the natural world.

One of the most memorable gardens I have recently explored is Makino Botanical Garden, perched on the forested slopes of Mount Godaisan on the island of Shikoku, Japan. For anyone interested in botany, ecology, and plant conservation, this remarkable garden is a destination well worth seeking out.



Established in 1958, the eight-hectare garden honors Dr. Tomitaro Makino (1862-1957), widely regarded as the “Father of Japanese Botany.” Like many passionate naturalists, Makino began as a keen observer of nature rather than a formally trained scientist. Raised in rural Kochi Prefecture, he developed an early fascination with wild plants and taught himself botany through careful study and relentless curiosity. Makino’s accomplishments are extraordinary. Over his lifetime, he collected more than 400,000 plant specimens, assembled a library of roughly 45,000 books, and assigned scientific names to more than 1,500 species and cultivars. His landmark reference, *Makino’s Illustrated Flora of Japan*, remains an essential resource for botanists and plant enthusiasts throughout Japan.

Walking through the garden feels like following in Makino’s footsteps. Meandering paths lead visitors

through beautifully designed landscapes that feature more than 3,000 species of Japanese wildflowers and cultivated plants. What makes the experience especially rewarding for naturalists is the attention to interpretation. Nearly every specimen is labeled, and QR codes provide additional information in Japanese, English, Chinese, and Korean. It is the sort of place where one can happily spend hours identifying and enjoying unfamiliar species and comparing plant communities from across Japan.

The garden is organized into ecological zones that reflect Japan’s diverse habitats, from coastal forests to alpine environments. The Ecology Garden emphasizes native plants of Kochi Prefecture (administrative district - similar to state or county), offering a fascinating glimpse into the flora of this biologically rich region. For those interested in global plant diversity, the large greenhouse contains tropical species, orchids, and cacti from around the world.

Another highlight is the Makino Museum of Plants and People, where visitors can explore Makino’s original botanical illustrations and learn how his meticulous work laid the foundation for modern plant taxonomy in Japan. His detailed drawings are a reminder that scientific observation can be both rigorous and profoundly artistic.

In 1999, the garden expanded to include research and administrative facilities that support conservation, education, and scientific study. Today, the institution conducts field surveys, preserves wild plant populations in Kochi Prefecture, and participates in international research projects, including work in Myanmar. In this way, the garden continues Makino’s legacy by serving as both a sanctuary for plants and a center for botanical discovery.

We were fortunate to visit in late April, when the garden was at its seasonal peak. Cherry blossoms floated like pale clouds above the pathways, while masses of azaleas painted the hillsides in brilliant shades of pink, crimson, and white. The spectacle was breathtaking, but what made the experience especially meaningful was the opportunity to observe these plants in a setting that celebrated both their beauty and their ecological significance.

For master naturalists, Makino Botanical Garden offers far more than a pleasant stroll. It is a place where botany, conservation, history, and education converge. It reminds us that every plant has a story, every landscape reflects a unique ecological heritage, and a lifetime of curiosity, like that of Dr. Tomitaro Makino, can deepen our understanding of the natural world.

Curing Plant Blindness Family by Family: Asteraceae by Diane Humes

Dr. Emmeline Dodd says "plants are precious," yet we suffer from an apparent inability to see them - a puzzling ailment known as "plant blindness." Dr. Barron Rector, a founding father of the Texas Master Naturalist program, always said, "If you can't see them, you don't know them." Of course, Dr. Warren Wagner, my botany professor, instead said, "If you can't kill them, you don't know them." All true!

The Center for Biological Diversity says, "Plants are a kingdom of life forms that includes familiar organisms such as trees, herbs, bushes, grasses, vines, ferns and mosses. **Through photosynthesis, they convert water and carbon dioxide into the oxygen** we breathe and the sugars that provide the primary fuel for life. Through **nitrogen fixation, plants generate proteins** that are basic building blocks of life. Early fossil records of photosynthesizing organisms date from about 3 billion years ago. Plants... produced the oxygen that made life on Earth possible – not only by 'breathing' it into the atmosphere and transforming it, but also by crushing rocks with their roots, **which created soils** and released nutrients on a large scale. Plants are crucial to the existence of all other living creatures on Earth...through the systemic life-support services...and **the food, medicine and other material resources** they provide. The total number of described plant species hovers around 250,000."

Also, "Our information on plant species numbers is far from perfect. The International Union for the Conservation of Nature's Red List estimates that about 54 percent of *evaluated* plant species (not nearly all the plants on Earth) are threatened...(and) about one in eight plants is considered at risk of extinction globally...The Red List says 279 evaluated plants are threatened in the United States."

Since we must recognize the plant, before all else, how do we organize them all? Carolus Linnaeus, father of the current system of nomenclature for animals, as well as plants, began the binomial naming system in 1735, using a genus and species name specific to each organism. He began this project just as European voyages of discovery began, so the task of cataloguing each organism grew ever larger and required constant revision, which continues to this day!

With modern analytical methods and tools, botanists and biologists keep expanding the limits of what is known about life on Earth, gaining insight into relationships and frustrating us with name changes to the system. Currently, the number of **flowering plant species** is thought to be 400,000, which are currently grouped into

416 families, **not** including the non-flowering ferns, mosses, liverworts, and gymnosperms.

Flowers, whose main job is to produce **seeds**, have four parts - sepals (usually green), **petals** (colorful, but not usually green), **stamens** (pollen), and **ovaries** (seeds). **Floral parts are the most distinctive of family characteristics**; they are less variable than morphological traits, i.e. growth form, leaves.

Ten of the largest plant families in Texas account for over half the total species. So, familiarity with family characteristics could greatly aid in plant identification. The largest family is the Asteraceae - the Aster and Sunflower family - with more than 600 species just in Texas!

Members of the **Asteraceae** - also called the **Compositae** - are usually **herbaceous** - hardly any trees for these guys and rarely shrubs or vines. Their **leaves are variable**, with pinnate venation, and the **flower is a head with many flowers**, having bracts surrounding it.



The **flowers are small and may be tubular or tongue shaped**. (You might need a hand lens to see these features.) **Flowers are usually grouped into a compact head, surrounded by bracts, appearing to be a single flower, but heads are grouped into a compound inflorescence**. Hence, the ancient name for the family - Compositae. There are **no sepals and petals are fused**,

usually with 5 small lobes. The **anthers - stamens - are fused into a ring around the style of the ovary**, which is inferior. **The fruit is a dry nut (achene) often with hairs (pappus) on top**.

Asteraceae members include: Echinacea (*Echinacea*), dandelion (*Taraxacum*), burdock (*Arctium*), wormwood (*Artemisia*), chrysanthemum (*Dendranthema*), ox-eye daisy (*Leucanthemum*), asters (*Aster*, etc.), thistles (*Cirsium*, *Carduus*), sunflowers (*Helianthus*), artichoke (*Cynara*), ragwort, groundsel (*Senecio*), knapweed (*Centaurea*), boneset, snakeroot (*Eupatorium*), marsh elder (*Iva*), ragweed (*Ambrosia*) and goldenrod (*Solidago*), plus more than one hundred other genera.

Ragweed and goldenrod are native to North America (mostly), both named by Linnaeus, both now non-native and invasive throughout Europe. Why Linnaeus named ragweed (*Ambrosia*), known as "the food of the gods," we

may never know - he probably did not know of its allergenic properties! Ragweed commonly grows alongside goldenrod (*Solidago*) - which he also named. Goldenrod is showy and yellow (see photo), while ragweed is green and inconspicuous, so the brightly colored, highly visible goldenrod which is pollinated by bees gets the blame for everyone's allergy, while the ragweed, which sheds millions of spiky, minute pollen grains into the air, is the real culprit.

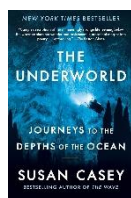
Many species of Asteraceae have yellow flowers, to the consternation of botanists, which has led them to use the highly technical botanical term "DYC" (damn yellow composite) to describe their frustrations with a difficult plant ID. You are not alone.

Dr. Peter Hamilton Raven, a botanist of global stature who, as director for nearly 4 decades, transformed the Missouri Botanical Garden into one of the world's leading centers for botany and became one of the most influential voices for biodiversity and conservation,

passed away on April 25, 2026. He was 89 years old. (See: The Midden, April 2026, "Women in Nature") Dr.

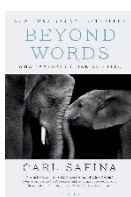
Peter Raven said, "Almost a tenth of all flowering plants belong to the great family Compositae...They occur throughout the world but are most abundant in geologically recent habitats like areas of Mediterranean (summer dry) climate, deserts and their margins, open prairies and steppes, and recently uplifted mountain ranges. Although some members of the family are widespread and a few are aggressive weeds, most of the species are relatively restricted in range, and quite a few are in danger of extinction in the face of habitat destruction and global warming...Compositae are... often considered 'difficult' because they are so numerous... Compositae are especially numerous in North America, with approximately 2500 species (an eighth of the total flora) recorded for the United States and Canada in the *Flora of North America*; it is the largest family in this area, and even more diverse, numerous, and better represented in Mexico... *Systematics, Evolution, and Biogeography of Compositae* 2009.

Heritage Book Club by TJ Fox



We have recently finished reading *The Underworld: Journeys to the Depths of the Ocean*, an engaging book that, at least for me, was a reminder that while the ocean makes up 98% of our earth's Biosphere, we have only explored a tiny percent of it. Until just two years ago, more people had made a

trip to the moon than had traveled to the depths of our ocean.



Our current book, *Beyond Words: What Animals Think and Feel*, is a complete change but, no less remarkable than our previous choice. The author, Carl Safina, introduces us to the long-studied, but little understood, lives of the animals which share our planet.

These excerpts from the many reviews available on-line will give you a much better feel for its scope and tone.

The first, "Mind-blowing, breath-taking, stunning, amazing, outstanding, extraordinary."

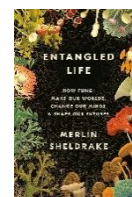
And "An enjoyable book with a convincing argument against behavioural scientists that refuse to attribute 'theory of mind' or feelings to animal".

Plus, "In the end, this author's point is pretty crucial: humans need to realize that we have a lot in common with other animals, and we are not the be-all-end-all of existence. If we don't, not only do we miss out on the wonder and beauty of our fellow animals, but our selfishness will eliminate everything around us, and eventually ourselves. Is it moralistic? Sure, but that doesn't mean it isn't true."

Finally, "Weaving decades of field observations with exciting new discoveries about the brain, Carl Safina's landmark book offers an intimate view of animal behavior to challenge the fixed boundary between humans and nonhuman animals."

Even though you may have missed the first of our two discussions covering this book, join us in September for our discussion of the second half of *Beyond Words: What Animals Think and Feel*.

You can also obtain a copy of *Entangled Life: How Fungi Make Our Worlds, Change Our Minds & Shape Our Futures* by Merlin Sheldrake, our read for October and November.



Not a member of the book club? Email me, so that I may add you to our list to receive links to our meetings. tj.fox39@gmail.com.

Outreach Funny Fill-In (Part 1) by Rebekah Gano

Thinking about going on an outreach? Brush up on your skills and have a laugh at the same time as you complete this silly fill-in-the-blanks activity. Just write words in each space and then put them into the story on the next page to make your very own outreach how-to.

- | | |
|--------------------------|-----------------------|
| 1. adjective _____ | 9. exclamation _____ |
| 2. adjective _____ | 10. number _____ |
| 3. noun _____ | 11. noun _____ |
| 4. plural noun _____ | 12. plural noun _____ |
| 5. past tense verb _____ | 13. verb _____ |
| 6. adjective _____ | 14. adverb _____ |
| 7. thing _____ | 15. plural noun _____ |
| 8. animal _____ | 16. adjective _____ |

Native Beneficial Species – Nine-banded Armadillo by Madeleine K. Barnes

In the past series of articles, we've been exploring invasive species affecting our environment and the native species within it. It seems to be a good time to give equal focus to native species and how they benefit the environment, other species and us. Our first subject is the official state small mammal of Texas, the Nine-banded Armadillo (*Dasypus novemcinctus*).



Image courtesy of Wikimedia Commons

The Texas Master Naturalist 2014 re-certification pin honored the nine-banded armadillo, which journeyed to Texas through Central America from South America in the early 1800's. Its habitat includes warm and wet woodlands, grassland, and farmland areas. This is the only armadillo found in the U.S., predominately in the southern states and throughout Texas, although not found in the western Trans Pecos portions where the soil is too hard.

Weighing in at 8-17 pounds, a nine-banded armadillo is about the size of a cat, with an outer body made up of a bony type of shell or plates. Its large plates are hard but covered in flexible keratinous skin, with three main plates: a pelvic shield, the shoulder area and the bands along the back which can number 9 or can vary between 8-11. Its head, partially covered with shielding, has a long softer, pinkish snout and bare ears, while its underside is hairy and unprotected - a weak spot and target for predators. An armadillo's body measures 15-17 inches in length, while the tail, which has 12-15 rings of scales, measures 14-16 inches. Its shielded muscular legs have four toes on the forefoot and five on the hindfoot with claws on all toes. The middle claw - forefoot or hindfoot - is the longest for digging for food and burrowing. Its mouth has short "peg" shaped teeth and a long sticky tongue for use in tight spaces and for gobbling up insects and grubs.

Quick Nine-banded Armadillo Facts:

The word armadillo translates to "little armored one" in Spanish. These creatures have keen hearing and sense of smell, but very poor eyesight. This fits, as they are primarily nocturnal, foraging between dusk and dawn. Ants, termites, grubs, beetles, grasshoppers and worms are their primary food, with additions of berries, fruits, bird eggs, and baby mammals/ reptiles.

Armadillos can carry a mycobacterium known to cause leprosy and have also been known to carry rabies, but they pose little to no danger to humans because of their timid nature and lack of aggressive biting tendencies.

While they are solitary animals, they come together to mate or pair in July. Interestingly, however, the embryo remains in a dormant state until November. A female produces four identical quadruplets of one sex in March-April after a four-month gestation. Armadillos are the only mammals that regularly produce multiple young from a single egg. They are able to reproduce by age 2 and fully grown by age 3. Their lifespan in the wild ranges from 7-20 years.

If you did see them in a group, it would be called a **roll** while a juvenile is called a **pup**. They can hold their breath for up to six minutes, which helps them cross small water bodies, which they do either by swimming or walking on the bottom. With a lower body temperature than most mammals - 86-95 degrees - and very little body fat, they have been prevented from advancing into colder northern states. Changes in temperature/climate could allow for more territorial expansion.

Because of that unprotected belly, our Texas Armadillo is prey to alligators, bobcats, coyotes and raptors, but the largest impacts to this species result from human hunting and encounters on roadways. When scared or panicked,

an armadillo's defense is to jump upward about 3 feet, which can be effective with other animals; however, this response to danger can be deadly for them in front of an oncoming vehicle.

These remarkable animals benefit our local ecosystems in two primary ways. First, the deep burrows armadillos abandon become vital shelter for diverse animals, offering shelter to snakes, rabbits, opossums, skunks, reptiles and various birds, thus contributing to the biodiversity of our local area.

Second, as insatiable insectivores, armadillos naturally suppress populations of destructive grubs, beetles and termites. Concurrently, their ceaseless foraging aerates the soil, mixing nutrients and fostering healthier plant growth across prairies and backyard gardens. Thus, these critters are like small tanks, excavating through the understory and over the prairie, again contributing to our local biodiversity.

The next time you see an armadillo, remember their vital contributions to the area. They are deserving of far more appreciation than they typically receive.

Going on an Outreach Funny Fill-In (Part 2) by Rebekah Gano

Going on an outreach is one of the (1. adjective) _____ ways to educate the public about nature, taking care of the environment, and what Texas Master Naturalists do. Follow these (2. adjective) _____ steps and soon you'll be a/an (3. noun) _____.

1. Sign up for an outreach. Festivals, nature center events, school activities, and outdoor (4. plural noun) _____ are the most likely destinations. Make sure the location, date, and shift times work for you.
2. Gather your supplies. The organization that (5. past tense verb) _____ the outreach may already have bins stocked with supplies. Alternatively, you might get to choose your own materials. Make sure you have a tablecloth, banner and/or sign, and handouts. If your booth will be outdoors, a/an (6. adjective) _____ tent is recommended. Also, consider an activity your booth will feature; you want something to draw people's (7. thing) _____ and encourage them to learn more about your mission. Crowd favorites include: a measuring tape, bird wingspan facts, and labels, or natural artifacts like (8. animal) _____ pelts and turtle shells.

3. Travel to the outreach. (9. exclamation) _____! Before you travel - at least (10. number) _____ days before the event - verify the outreach information. Double-check the address of the outreach and the date and time of your shift (including any setup or takedown time). Also, check in with other volunteers who are attending the outreach to plan carpools and arrange transportation of supplies. The day of the event, plug the address into your (11. noun) _____ and head to the outreach. Make sure you leave plenty of extra time for unplanned (12. plural noun) _____.
4. Meet the public! When, at last, you arrive at the outreach and people find your booth, remember to (13. verb) _____ politely and speak (14. adverb) _____. Whatever happens, whether you reach big crowds or just a few (15. plural noun) _____, proudly represent the Texas Master Naturalists and know that you're making a/an (16. adjective) _____ difference!



Broad-winged Hawks by Diane Humes

Broad-winged hawks, or broad wings, are one of our favorite birds to spot during spring hawk watch; we get excited when we see a large kettle forming overhead and have gotten pretty good at counting them as they stream northward. But then they are gone and what else do we know about them? Perhaps we should learn a bit more.



Broad wings are buteos - stocky, medium-sized hawks widely distributed throughout the world. The genus includes about 30 species of hawks and buzzards - Swainson's hawks, red-tailed hawks, European buzzards, ferruginous, red-shouldered hawks and broad-winged hawks (*Buteo platypterus*). The broad-winged hawk species is divided into 6 subspecies, 5 of which are endemic to Caribbean islands - Cuba, Puerto

Rico, St. Lucia, Antigua and the Lesser Antilles - and do not migrate. The largest number of broad wings, the ones we await each spring, migrate from southern Brazil and Central America into North America to southeastern Canada to breed in the northern deciduous forests.

Broad-winged hawks were first named and described by French naturalist and ornithologist, Louis Pierre Vieillot (1748-1830). Vieillot had been managing his family business in Haiti but was forced to flee to the United States during the Haitian Revolution (1791 - 1804). He used his time wisely, collecting and describing a great many North American birds; in fact, he described 26 genera and 32 species that still bear his name. Vieillot published his two-volume work, *Histoire naturelle des oiseaux de l'Amérique Septentrionale*, in France in 1807. Note: "septentrionale" refers to the seven major stars of the Big Dipper, a constellation only visible in the northern hemisphere; therefore, North America.

Broad wings are brown and white streaked birds, weighing about one pound, standing about one to one and a half feet tall, with a wingspan of two to three feet. As with most raptors, females are slightly larger than males. Mated pairs build stick nests in tree tops in deciduous and mixed forests; females remain close to the nest, tending the one to four brown-spotted eggs, which take about 28 days to hatch. Males also help with nest duties; both parents will defend the nest, usually swooping down and calling, but rarely making contact.

Broad wings are carnivores and eat what is seasonally available, including chipmunks, shrews, voles, frogs, lizards, grasshoppers, dragonflies, caterpillars, snakes, crabs, lizards or earthworms. They watch from low branches for unsuspecting prey which are mostly eaten whole, but they may skin frogs and reptiles and pluck feathers from small birds. They rarely need to drink water.

Downy chicks need five to six weeks of parental care before they can leave the nest; sometimes, they hang around even longer. Mom provides the most care, tearing prey items into bite-sized morsels for her young until they can do it for themselves. Dad also brings food to the nest and helps protect the chicks from intruders like raccoons, crows, porcupines, black bears, and occasional red-tailed hawks and golden or bald eagles. In Puerto Rico, predators also include invasive boa constrictors.

These birds appear to be expanding their breeding ranges to western Canada. But more excitingly, in 2019 a nesting pair was discovered in Lubbock AND another pair successfully nested in SE Harris County in 2024. The Mississippi Kites are nesting in our suburban neighborhoods; perhaps the hawks are following suit. So, always keep your eyes and ears open!

Parents and young fly south between August and November to reach their wintering grounds and their flights may be counted along the way at various locations. In the fall of 2025, hawk watchers in Veracruz, Mexico counted 1,245,214 broad wings flying over the two watch sites. Likewise, the Corpus Christi Hawk Watch site reported a 2025 season total of 736,036 broad wings. Listed by the IUCN as a species of Least Concern, the total world population of broad-winged hawks is estimated to be between 1 and 1.5 million birds.

To keep better tabs on our returning springtime friends, visit the Smith Point Hawk Watch, operated by the Gulf Coast Bird Observatory, any day between August 15 and November 15, but an especially exciting target date could be during International Hawk Migration Week (IHMW), September 12- 20, 2026. This week in mid to late September was chosen due to the sheer number of raptors that are counted across the Americas. Last year, 113 sites through North, Central and South America tallied over 700,000 migrating raptors during IHMW.

Join watch sites throughout North America during this special week to enjoy the annual spectacle of fall raptor migration and help raise awareness of hawks, hawk migration and the HMA network of sites that make Hawkcount.org an invaluable resource. See hawkcount.org for specific data.

August and September Activities

ADVANCED TRAINING OPPORTUNITIES

Chapter Meeting - August 6; Jellies, Man o' Wars and Dragons

Presenter: Cindy Howard

6pm Social, 6:30pm Meeting, 7pm Speaker

At Extension Office* and via Zoom; 1 hour AT

Ongoing

Heritage Book Club

First Monday of every month via Zoom; 2 hours AT

Contact: TJ Fox, tj.fox39@gmail.com

See Pg. 7 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/>.

CHAPTER INFORMATION AND RESOURCES

Calendar - <https://txmn.org/gbmn/gbac-events-calendar/>
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>

The Midden Deadline

for the next issue

August 31



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Galveston Bay Area Chapter

The Midden

The Midden is published bimonthly by the Galveston Bay Area Chapter - Texas Master Naturalists to inform, communicate and educate chapter members and the community about our natural world and serve as an archive of chapter activities. To submit an article or 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 the extension office at 281-534-3413.

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