



The Midden

Evening primroses by Terva Densmore

Galveston Bay Area Chapter - Texas Master Naturalists

April 2021

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President's Corner by Pam House

As I began to write this, I was reflecting on the last chapter meeting and the 20th anniversary celebrations that will be ongoing this year. It was such a pleasure to see (via Zoom) Dick Benoit, to hear Sara Snell and Diane Humes tell the stories about the founding of the chapter, and to have George Regmund tell about the contributions and pleasures of working through the years with Mark Kramer at Armand Bayou Nature Center. Dr. Chris Marshall from the Gulf Center for Sea Turtle Research, TAMUG, announced another growth to the activities of the chapter by revealing the soon-to-be-finalized partnership between GBAC-TMN and the center. It was also fun to see how the members of my class of 2020 are being integrated so completely into chapter activities, in spite of the limitations we faced in our training class.

It all seems to me to illustrate that our motto of "Food, Fun, and Friendship" could easily be expanded to include "family." "Family" in the sense of being members of a community that join together to celebrate the natural world and in efforts to protect it; "family" also in the sense of caring about one another and finding joy in being together.

Since that chapter meeting, the truth of our family connections has become even more apparent. The first chapter-wide communications I sent out were to report the deaths of a member and that of a dear chapter friend. Next, the winter storm crisis led the board, as they coped with their own power and water outages, to check in with each other and our members. When we reached out, we expected to hear from those who needed help, and we did. But we heard much more from those who were offering help to others. What a special group of people.

As you read this, I am sure that our master naturalist family is already deeply invested in regrouping, replanting, and rebuilding. You will do that pursuing your diverse interests, but also supporting each other in whatever manner needed. For instance, the Dolphin Challenge will take place as a virtual event on March 6 and 7 with the help of many of you. After the unprecedented challenges of the past year, we all hope that the next few months bring a blossoming of opportunities to work and be together.

I am particularly pleased to make my debut in the 100th issue of *The Midden*. I look forward to joining you in continuing to celebrate our 20th year and in personally getting to know more of my new family members.

Next Chapter Meeting

April 1

Introduction to Lichens

By

Dr. Manuela Dal Forno

Botanical Research
Institute of Texas

Via Zoom

The Midden's 100th Issue

Wetland Wanderings: Oh, How We Have Wandered!

The first Wetland Wanderings columns appeared in The Midden in 2008. This one, describing a Common Loon at

Mason Park on Brays Bayou appeared in June. Sure hope the loon made it back to the north country!!

WETLAND by Diane Humes

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S** Spring is glorious in the wetlands! As naturalists, we are interested in the plants AND the wildlife, but it is going to be hard to top the sight of a Common Loon in full tuxedo i.e. breeding plumage, preening and displaying on Brays Bayou near downtown Houston! That is, unless you count hearing his calls wafting over the water!! The same fine day also included nesting cliff swallows swarming out from under the 75th Street Bridge when faced with the threat of a bucket being lowered to take a water sample.

The Mason Park Treatment Wetland continues performing its job of cleaning up the water; the most recent bacterial sample, taken after a rain, was astronomical, but the treatment marshes reduced the bacterial count by more than 99%. Must be doing something right...Wildlife seems to think so.



The Wetland Restoration Team has been stomping about in three counties collecting plants and then straightening and tidying up the nursery at NRG. (Must be spring cleaning!) The Team is also



befriending a somewhat "loony" mother killdeer that is making her nests in the driveway at NRG. We have to be careful where to step and drive, as her nests are barely distinguishable from the road! The Team also hosted the first-ever Trash Bash at Mason Park (more spring cleaning!!) and had over 100 volunteers collect 1200 pounds of trash and 8 automobile tires. It was a great job and a fun day.

Last, but not least, we have rescued nearly 500 spider lilies from eminent destruction from the construction at the new I-10 bridge over the Trinity River. The bridge is badly needed – try looking up

from underneath sometime – and the lilies will enjoy their new homes at ABNC and Sheldon Lake State Park. To learn more about wetland wanderings, check out the blog:

<http://wetteam.blogspot.com/>

Prairie Ponderings: A Trip Down Memory Lane

This Prairie Ponderings column from June 2008 is by the original prairie whisperer, Dick Benoit.

PRAIRIE *by Dick Benoit*

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We Helped to Restore an Acre of Prairie Today

Friday, June 20, 2008, in Grimes Prairie at Armand Bayou Nature Center, we helped to restore an acre of prairie. The process had begun last fall with the collection of seeds of mainly prairie grasses from local prairie remnants and rescue of plants from right-of-ways. The seeds were planted mainly at Texas Master Gardner Precinct 2 greenhouses and cared for by Tom Solomon and Jim Duron at Armand Bayou Nature Center. Many of the seedlings were sprigged by the Prairie Friday crew.

Under the leadership of Mark Kramer, George Regmund, and Chris Mattox, the stewardship crew at Armand Bayou Nature Center, the project was guided to its fruition when the Corporate Planting was completed with a work crew of 40 persons from Convergent Corporation.

Prior to the planting date, the one-gallon plants of Big Bluestem, Switch Grass, and Eastern Gamma Grass were watered by Tom and Jim. A week prior to the planting, Art Carpenter and Merl Bundy augered about 1200 holes with the use of the Nature Center's tractor. The day of the planting, the well-developed planting scheme of Tom was completed with mentoring by Gail, Diane, Gerre, Liz, Lan, Tom, Jim, George and Chris.

Each of the augered holes had a pin flag to locate it. The holes were soaked with a gallon of water prior to inserting the plant, then marked with a wooden skewer with its top painted and soaked with another gallon of water. The process of planting over 1200 plants by the forty workers and nine mentors was completed by noon, at which time the crew was rewarded with a fine bar-be-cue lunch and the sense of achievement in planting an acre of prairie.

Prairie Pyramid

By Dick Benoit

Prairie
Sun and Wind
Insects , Invertebrates
Deer, Coyotes, Kites, Sparrows
Baccharis, Iva, Persimmons, Myrtle
Baptisia, Rattlesnake Master, Coneflower
Big Bluestem, Little Bluestem, Switch, Indian
Soil, Nematodes, Bacteria, Roots, Tubers, Bulbs, Water

Coastal Corner: Still Caring for Sea Turtles

Members of our chapter began monitoring Kemp's Ridley sea turtle nesting success on the Upper Texas Gulf Coast in 2007. Steve Alexander's article, from the August 2008 Midden, describes the second Sea Turtle Patrol season.

Master Naturalists Conclude 2008 Sea Turtle Patrols

by Steve Alexander

For the second year, GBAC Texas Master Naturalists participated in a program to document the nesting of Kemp's Ridley sea turtles on the upper Texas coast. Texas Master Naturalists recently completing 2008 nesting season patrols include Steve Alexander, Ron Atkins, Jack Clason, Bev Framea, Bill Holcombe, Mel Measeles, Leo Symmank, and Beverly Williams.

Patrollers attended a mandatory March training session prior to the April 1 start of nesting season. Patrollers then signed up for April, May, and June foot patrols on designated Galveston Island beaches.

Highlighting this year's patrols was the opportunity to work with a nesting sea turtle or a sea turtle nest. Two TMN volunteers (Steve Alexander and Jack Clason) worked with Ila, the female Kemp's Ridley that came ashore May 1 at 39th Street on Galveston Island. Three other TMN volunteers worked with Missy, the female Kemp's Ridley that came ashore May 20 at Jamaica Beach on Galveston Island. And one other TMN volunteer helped excavate a nest full of sea turtle eggs.

Along the entire Texas coast, a record 182 Kemp's Ridley nests have been found in 2008 (as of June 29), compared to 128 nests found in 2007. Of the 182 nests this year, 15 were found on the upper Texas coast, six of these on Galveston Island. Of the 128 nests found in 2007, 15 were found on the upper Texas coast, seven of these on Galveston Island.

Given the success of this program in documenting the comeback of the Kemp's Ridley sea turtle, it is anticipated that patrols will begin again April 1, 2009. If you are interested in participating during the 2009 nesting season, watch for information on the March patrol training session.



Photos by Jack Clason Above: Ila returns to the Gulf fitted with a satellite-tracking device. Right: Her eggs are packed ready for shipment to Padre Island National Seashore where they will hatch and the young turtles will return to the Gulf.

Junior Master Naturalists Club continued The principal and staff are so excited that we'll be allowed to conduct the program during school hours and have been promised the assistance of at least one of the Science teachers. Serving as a team counselor is a big commitment, but oh boy, it is really a rewarding volunteer opportunity! Please let me know if you're interested because a couple of last year's volunteers will be moving on to other things. I promise you a year's worth of fun and adventure in the good company of some scientists of the future!

Green Space: Downsizing Disposable Plastic in My Life ... One Room at a Time

by Stephanie Shipp and the Green Team

As the Green Team was getting underway in 2018, I took stock of plastic in my life. Like many of us, my husband and I already put some effort into reducing single-use plastic (SUP). We drink from reusable water bottles and hot-drink containers, dine in at restaurants and bring containers for leftovers rather than using the restaurant's carry-outs, and we take our own washable cloth bags to the market. However, we still came home with considerable SUP in those reusable bags: throw-away plastic that outlives its use, such as bottles for shampoo, conditioner, liquid soap refills, laundry detergent, deodorant, toothpaste ... used until empty, and then recycled at best, sent to landfill at worst.

I went room by room to see what I could eliminate by myself asking two questions: 1) what did we NOT need that we could do without in the future? and 2) where could we make immediate changes? I started with the low-hanging fruit: The bathroom. It is a small room, after all, how long could it take? Mouthwash fell into the "don't-need-that-stuff-in-a-plastic-bottle" category. Brushing and flossing seemed quite enough, and there are plenty of plastic-less DIY mouth-freshening and cleansing options out there, like saltwater with a touch of sage, or saltwater and baking soda. One bottle down!

I also decided to eliminate some haircare products, such as styling gel and hairspray. I already use them infrequently (especially now, in The Age of Zoom), and a good haircut goes a long way to leverage personal assets. I am now a firm proponent of "free-range hair." Two bottles down.

Liquid hand soap, body wash, and their refills were easy targets. How many generations have used bar soap to wash their hands? Answer: all of them until liquid soap hit the market in the 1980s. It is easy to find a variety of bar soaps that work well on hands and in the shower at your grocery store. You also can find some lovely handmade soaps at farmer's markets and specialty shops. Make sure the soap is packaged in paper. Take it up a notch by getting/making/repurposing a non-plastic soap dish. Two more bottles down!



A relatively quick fix also came in the shampoo and conditioner categories as well; there are many, many bar shampoo and conditioner options on the market. The trick is finding replacements with appealing scents and "latherability" (yes, that's a word), and to find bars that are relatively local with Earth-friendly packaging of paper or cardboard. It is worth the query but beware upscale shampoo bars in fancy plastic and metal packaging, which defeats the purpose of skipping the plastic bottle. Two more bottles down!

Some changes will be a longer time in coming. As I took my inventory of disposable plastic in the bathroom, I noted my toothbrush, shower-curtain liner, and razor. When the time comes for disposal -- or repurposing, in the case of the toothbrush and shower-curtain liner -- they will be replaced with plastic-free options, like a wooden toothbrush, cloth-curtain liner, and stainless-steel safety razor. I still am researching options for purchasing or making plastic-free and ADA-approved toothpaste, deodorant, and lotion.

Some changes are even further off. Most of these fall into the medical realm: sunscreen, medication packaging, and household antibiotics. We may see more options come on the market in the future, and I certainly am an advocate of plastic replacements by industry for these purposes where it is safe to do so.

There are additional choices for areas where I have not made changes yet. Some online and in-person stores offer refill services to patrons who bring containers for lotions, shampoos, liquid soap, and other personal and household products. Other organizations offer recycling options for materials that cannot be recycled in the typical community stream, such as toothpaste tubes. This is an encouraging and growing trend. Unfortunately, I do not yet have access to some of these products and services in my current area. I will keep watch! A quick Google search for specific services or items, such as "bar shampoo" or "wooden toothbrush," will yield plenty of options that you can research to find the product that works best for you.

So, what is my impact from the changes I have made in reducing disposable plastic in my bathroom? I figure that each year I used: 6 bottles mouthwash + 6 bottles shampoo + 6 bottles conditioner + 12 bottles body wash + 6 bottles hand soap refill + 2 bottles hair gel + 1 bottle hair spray. That's 39 bottles a year ... 390 bottles a decade ... 1,170 over three decades (for the record, I plan to live a lot longer). Not bad for low-hanging fruit. Now, onto toothpaste, deodorant, and lotion ...

New Chapter President by Diane Humes

Susette Mahaffey announced on Feb. 4 that she is unable to continue as chapter president, as she and Keith have moved to Round Rock. She will remain on the board as past president. Thank you, Susette, for all your

leadership and best wishes from all of us. Pam House, Secretary, agreed to step up as president and Meade LeBlanc was appointed secretary.

Women in Nature: Diane Wilson by Meade LeBlanc

Diane Wilson, 73, is an environmental activist in Texas who did not shy away from using protests, hunger strikes and other confrontational measures to change environmental laws.

She is a retired fourth-generation shrimp boat captain from Seadrift. Being a woman shrimper already tells something about her, as it is considered a demanding profession, at best, and brutal, at worst.

Wilson began fishing the bays off the Gulf Coast when she was 8. She became a boat captain in her mid-20s, and also ran her brother's fish house.

In the late 1980s, she became involved in environmental issues when she learned of neighbors' health problems, reduced fishery catches and dolphin die-offs. In 1989, she read an Associated Press article that listed her home of rural Calhoun County as the No. 1 toxic polluter in the country. Calhoun County had only 19,000 residents then, but it was the home of Alcoa Aluminum, BP Chemical, Carbon Graphite, Dow / Union Carbide, and Dupont.

Around that time, the Formosa Plastics Corp. of Taiwan established a petrochemical factory at Point Comfort. When that company requested a wastewater permit, Wilson became involved in the fight to keep toxins out of the bay.

Thus, she began her career as an environmental activist, and her journey was not quick nor easy. She was reportedly threatened by thugs, offered bribes, opposed by local politicians, and despised by neighbors. She responded with protests, hunger strikes, and famously decided to sink her shrimp boat to make her point.

With the help of a pro bono lawyer and a Greenpeace activist, in 1994 she won "zero discharge" agreements (meaning no liquid effluent discharge into the environment) from Formosa and Alcoa.

She continued to launch campaigns to raise awareness for environmental causes. She was a plaintiff in a suit, *Waterkeeper v. Formosa*, against Formosa Plastics for violations of the Clean Water Act resulting in discharges of pollution along the Texas coast. Along with other volunteers, she collected millions of nurdles that served

as evidence in the case. The suit was settled for \$50 million in October 2019. It was the largest settlement in U.S. history involving a private citizen's lawsuit against an industrial polluter under federal clean air and water laws.



Photo by Chelsea Green, © Chelsea Green

The money is being placed in trust to pay for programs supporting pollution mitigation, habitat restoration, public education and other environmental efforts on the middle Texas Gulf Coast.

"Having the \$50 million settlement go to local environmental projects feels like justice," said Wilson in a statement. "Formosa polluted Lavaca Bay and nearby waterways for years. Now it will pay for strong community projects that will improve the health and welfare of our waterways and beaches."

She has received the "Hellraiser of the Month" award from *Mother Jones* magazine, and a number of other awards, including National Fisherman Magazine Award, Louis Gibbs' Environmental Lifetime Award, Louisiana Environmental Action Environmental Award, Giraffe Project, Jenifer Altman Award and the Bioneers Award.

Her book, *An Unreasonable Woman, A True Story of Shrimpers, Politicos, Polluters and the Fight for Seadrift, Texas* is an account of her journey. Her story shows that one person can fight for a cause and indeed make a difference.

Editor's note: Diane Wilson is a private citizen; as a private citizen you may follow her example, just not as a Texas Master Naturalist.

The Midden is 100! by Diane Humes

Not 100 years old, but 100 issues.

First published in February 2001 by first GBAC training class member Alan Wilde, Volume 1, Issue 1, of *The Midden* was four pages long. The news from Issue 1 was of preparations for the second training class and the great progress in writing Chapter Bylaws, as reported by President Jackie Tingle. Vice President Doris Heard coined the name for the chapter newsletter, giving a nod to the Gulf Coast's original human inhabitants.

Alan Wilde passed the newsletter job to Chuck Snyder in 2003, with Terry Sheehey taking a brief stint in 2005, followed again by Chuck Snyder. Each of them was plagued by that four-letter word "work" and, realizing that this task required more than one person, in 2007 Nathan Veatch, Steve Alexander and Carolyn Miles organized as a committee to produce a newsletter before every chapter meeting. I also joined the team about the same time.

President Dick Benoit began writing Prairie Ponderings and talked me into Wetland Wanderings; Steve Alexander contributed a treasure trove of beach articles long before he officially began a regular Beach Patrol column. The team coordinated with the Advanced Training Team and Heritage Book Study to make sure that the topic of every AT got reported, with emphasis on the training's content. Science and natural history content grew, we won first place for outstanding chapter newsletter in 2014 and 2015 at the State Meeting and Dick opined that *The Midden* had grown into a journal.

Nathan retired as editor in 2013 and named me editor. (Note: Jill Veatch also retired as unofficial proofreader in chief - a hard act to follow!) We all had to up our games. Chuck Snyder retired (again) from his job in 2013 and returned to the team, making our photos beautiful ever since. Steve retired from *The Midden* in 2016 and collected his beach essays into a book, *Exploring Galveston: A Naturalist's Guide to the Island*. What you may not realize, however, is that Carolyn Miles has assembled every single issue of *The Midden* since 2008 - 80 at least and counting!

That is our history, in a nutshell. I realize looking back that the body of work contained in *The Midden*, aside from its educational value, may be the most easily accessible archive of the chapter's history and, possibly, the most complete. All issues (minus one) are now accessible on the chapter website.

The absolutely awesome Midden Team continues its work, "to inform, communicate and educate chapter members and the community." Many, many chapter members have contributed to *The Midden's* success; may it last as long as our shell midden namesakes.

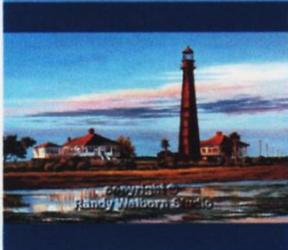
Thanks for reading *The Midden*. From the Team: Madeleine K. Barnes, Lana Berkowitz, Sheron Evans, Verva Densmore, Bekah Gano, Diane Humes, Meade LeBlanc, Carolyn Miles, Chuck Snyder

(Note: If you have a copy of *The Midden*, Volume 1, Issue 2 from 2001, please contact Diane Humes. <treimanhumes@gmail.com>)



2010
The Midden
Team

Volume 1, Issue 1
February, 2001



GALVESTON BAY AREA CHAPTER — TEXAS MASTER NATURALIST

The Midden

Galveston Bay Area Master Naturalists Get Wet!

By Julie Massey

“Getting wet” is cool — especially in January! I am totally wowed by all the activities that Galveston Bay Area Master Naturalists (GBAMN) have been involved in since the end of class!

The Board of Directors has been working hard all of January to draft by-laws and policy — with over 200 person-hours logged so far — so that we can establish non-profit status before the price goes up.

I know many of you have participated in the wetland plant management efforts at the Reliant Cedar Bayou Plant. Talk about a great opportunity to get that mud bath and sling a few plants at unsuspecting friends — you know who you are!

Many volunteers worked at the Sea Grant exhibit at the Houston Boat Show. My co-workers, bosses and I really appreciated all the help and look forward to working with GBAMN in the future!

I know Armand Bayou is also benefiting from your volunteer efforts. I understand

that one or two of you really enjoy burning things — or, rather, the prairie.

Many of you learned more about seafood than you probably wanted to know at our “Something Fishy is for Dinner” workshop — and the gyotaku (fish printing) results were great!

I know I am missing many of the volunteer and advanced training opportunities that GBAMN members have participated in recently but I want to thank each of you for your dedication and enthusiasm in restoring our area’s natural resources. I really can’t begin to tell you how much I thoroughly enjoy working with you and getting to know you better. See you soon on the Bay! Take care!

Julie



An example of gyotaku

The Board of Directors

Executive Board

President — Jackie Tingle
Vice President — Doris Heard
Treasurer — Mary Lou Kelso
Recording Secretary — Anne Ray
Membership Officer — Cliff Muehe
At-large — Horace Kelso

Standing Committee Chairs

Volunteer/Advanced Training — Carolyn Lovell
Training Class — Dick Benoit
Communications — Alan Wilde

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Special points of interest:

- Help us name our Newsletter
- Let us know what you think of this edition of the Newsletter; tell us what you’d like to see in future editions. Contact Alan Wilde at 409-935-4383 or awilde2@houston.rr.com
- Help us pick a logo for the Chapter
- Contact Carolyn Lovell at 281-992-4914 or Cal0lovell@aol.com if you need pre-approval for volunteer or advanced training hours
- At the end of each month, give your hours to Cliff Muehe at 409-925-7517 or CliffordMuehe@msn.com



Looking Forward

By Sara Snell, Chapter President

**SEE IT
BELIEVE IT then
MAKE IT HAPPEN.**

Hats off to Chuck Snyder and Carolyn Miles ---- our true Superman and Superwoman – who, in between working jobs, managed to make major breakthroughs to improve our communication. Chapter THANKS to them both. Never in my wildest thoughts did I think we could have a Midden published on schedule and a web site up and running by the end of January – and we did!!! Whoever said “ask a busy person to do something and they will get it done” could not have spoken truer words.

Several of us attended a joint chapter function at Brazos Bend State Park where we had the opportunity to hear Dennis Jones talk about the challenge of being a Master Naturalist and the relationship we must establish with the land. Dr. Rector gave a similar message at the class on 2/23, and Jim Blackburn weaves the same message through *The Book of Texas Bays*. As members of the Galveston Bay Area Chapter, we have the unique opportunity to establish our relationship with the land by:

- restoring and preserving our wetlands and prairies,
- monitoring the water, flora and fauna of our Bay ecosystem, and
- passing on our knowledge through educating youth and adults

I challenge all of you to try a new activity this year and find an opportunity to use the knowledge you gain through our Master Naturalist program.

Sara Snell

As true today as in 2006

The Midden Team for the 100th issue



Let's Go Wild for the City Nature Challenge 2021 by Emily Morris

We've had AT on how to use iNaturalist, you've used the app to post your observations and help others ID theirs; now it's time to put those skills to the test to see if we can help Houston rank #1 in the most species documented, the most observations, or even the most participants. The City Nature Challenge, April 30-May 3, 2021, gives individuals the opportunity to exercise their citizen-scientist skills by visually documenting the flora and fauna they see on a daily basis. Every submission posted in the greater Houston metropolitan area gives credit to the Houston-Galveston group.



This is a perfect activity in which to participate in the days of COVID because all you need is your smart phone with the iNaturalist app installed and to get outside and snap pictures of the wildlife and plants you see. iNaturalist also works on every digital device, so you can upload pictures

from a camera to your computer, and then submit them to iNaturalist online.

The Houston 2021 sponsors are The Nature Conservancy in Texas, the Houston Museum of Natural Science, Bayou Land Conservancy, Audubon Society, Texas Master Naturalists, and Texas Parks and Wildlife.

The City Nature Challenge began in 2016 when the Natural History Museum of Los Angeles County and California Academy of Sciences devised a friendly competition between their cities of Los Angeles and San Francisco to document urban biodiversity, using the iNaturalist app. Within two years, the event had expanded into a global competition. What began as a master's degree final project in 2008, the iNaturalist app, is now a joint venture between California Academy of Sciences and National Geographic and is the impetus behind the City Nature Challenge.

To learn more about iNaturalist, the City Nature Challenge and Houston-Galveston's participation in the challenge, please visit the following links:

- **iNaturalist.org:** <https://www.inaturalist.org/pages/about>
- **Citynaturechallenge.org:** <https://citynaturechallenge.org/>
- **Video from 2020 challenge:** <https://youtu.be/ZvBq9yZLWuQ>
- **Houston:** <https://www.inaturalist.org/projects/city-nature-challenge-2021-houston-galveston>

Editor's note: How many animals can you identify in the logo?

Trash Bash 2021 - Will Be Going Virtual!

From www.trashbash.org:

The River, Lakes, Bays 'N Bayous Trash Bash event will be going virtual in 2021 to protect our volunteers and their families. Celebrate with us and learn how to be good stewards of our Galveston Bay watershed March 25-28.

For complete information on the virtual event, visit <http://www.trashbash.org/2021-trash-bashreg.html>



Top Ten Quiz: Insect Orders by Emmeline Dodd

Even if you are a birder, you probably know more common names of insects than you do birds. More than half of all the animals on earth are insects. There are 1 million species of insects (more likely up to 3 million), but there are only ½ million species of all other animals. Since insect names are so common (and so misleading), I will not be using them for our matching challenge.

Insects are animals (Kingdom Animalia) and members of the phylum Arthropoda, meaning joint footed - in this case jointed appendages. All insects are arthropods and

are further classified into orders. Note the extensive use of *ptera* in the order names. *Ptera* means wings, the most commonly used identifier in insect taxonomy.

The following Top Ten orders contain the largest number of species, listed in order from those with the largest number of species to the smallest. The orders for lice, crickets, mayflies, earwigs, etc. are not included. Match the orders with the corresponding picture. Answers are on back page.



1. DRAGONFLY



2. BEE



3. MOTH



4. ASSASSIN BUG



5. JUNE BUG



6. CRANE FLY



7. LACEWING



8. GRASSHOPPER



9. APHID



10. FLEA

Possible Answers

- ___ Coleoptera
- ___ Lepidoptera
- ___ Hymenoptera
- ___ Diptera
- ___ Hemiptera
- ___ Homoptera
- ___ Orthoptera
- ___ Odonata
- ___ Neuroptera
- ___ Siphonaptera

Hints on the next page.

- **Coleoptera** (sheath winged) Fore wings are hard and meet in a straight line down the back over the hindwings.
- **Lepidoptera** (scaly winged) Wings are covered with scales that easily rub off. Many are brightly colored.
- **Hymenoptera** (membrane winged) Fore wings are longer than hind wings which are often hooked to forewings. Wings are transparent.
- **Diptera** (two winged) One pair of transparent wings.
- **Hemiptera** (half winged) Fore wings are leathery at the base and thinner at the extremities. There is a triangle on the back where the wings overlap. These are the ONLY true bugs.
- **Homoptera** (like wings) Fore wings form a pointed roof over the hind wings.
- **Orthoptera** (straight winged) fore wings are leathery. Chewing mouthparts.
- **Odonata** (toothed mouthparts) Primary carnivores that feed on other insects. Long slender bodies with long clear wings.
- **Neuroptera** (nerve winged) clear wings equal in size with many fine veins. Delicate insects,
- **Siphonaptera** (wingless tube or pipe) Parasites whose mouthparts are adapted for piercing skin and sucking blood

There are at least 100,000 species of insects native to the U.S. More than 1/3 of these are found in Texas, the state with more different kinds of insects than any other state. Now you can add that fact to your "bragging" rights about Texas.

Enjoy all of these insects; just don't let them "bug" you.

In Memory of Dr. William Johnson by Diane Humes

Dr. William Johnson, Galveston County AgriLife Extension Office administrator, died Feb. 12. He was a horticulturalist with vast experience in entomology and plant pathology and directed the Master Gardener program for many years. He also was Julie's boss, and great friend to our chapter.

Dr. J, as he was affectionately known, attended most of our chapter's training classes, usually on the final day.

He would humorously advise us to always remember to be nice to one another; he certainly showed a big smile, friendly face and kind words to everyone.

Master gardeners and master naturalists owe their successes to Dr. William Johnson and will remember him always.

Wondering about Worms: Flatworms by Rebekah Gano

In early April 2020, I was puttering around in the backyard when one of my children called, "Mom! What is this?" I hurried over and saw an odd-looking worm; it was very long and thin with a triangular head that seemed too big for the rest of it. I had no idea what it was, but I did discover that the rain barrel valve had not been completely turned off. The slow leak must have made a perfectly damp habitat for this mystery creature.

I hurried inside to get my phone so I could take a picture of the new discovery. Unfortunately, by the time I got back outside, the worm had buried its head in the lawn. My daughter and I failed to get the worm back out of the ground, but we made a discovery in the process. Those worms are like rubber bands! I never knew a worm could stretch from about 10cm to 20!

We gave up on retrieving the worm and turned to online investigation. A quick search revealed that the worm was

a hammerhead flatworm, a planarium with the scientific name *Bipalium kewense*. According to the Texas Invasive Species Institute (TISI), *B. kewense* originally lived in Asia, but the worms have made themselves at home in greenhouses and warm, humid places like the Gulf Coast. Egg cases of *B. kewense* have been found, but they are most likely to reproduce asexually by dropping a tail piece, which then grows a head within 10 days. Hammerhead worms eat earthworms and potentially other soft-bodied creatures like insect larvae, snails and slugs; they also consume each other. We read that terrestrial planaria secrete chemicals, including tetrodotoxin, to immobilize their prey, so we made sure to wash our hands thoroughly.

Many species of this genus including *B. kewense* have not been studied in-depth, and TISI is gathering information about them. There is so much more to be discovered about flatworms. The next time you see a

backyard worm that is not an earthworm, take a photo and perhaps even a sample. Check the TISI website, and you might be able to add to the scientific knowledge base.



Photo by P. M. Choate. Courtesy of Texas Invasives

While researching flatworms, I discovered that another invasive flatworm has been found in the Galveston Bay area. The New Guinea flatworm (*Platydemus manokwari*) was found in Pearland in 2019. This flatworm is known to carry parasites, such as rat lungworm (*Angiostrongylus cantonensis*); thankfully, rat lungworm has not been detected in our area. The New Guinea flatworm looks like a long slug with a snout that sticks up as it crawls. TISI asks anyone who sees one to take a picture and submit it. They also would like living flatworm samples, but they caution citizens not to touch them with their bare skin. TISI notes that terrestrial flatworms are unwanted invasives and that they can usually be killed with a sprinkle of orange oil spray, vinegar solution or salt.

Big Picture: Connections Across Space and Time by Diane Humes

A recent headline caught my eye: “Scientists count elephants from space with impressive accuracy.” But that’s not all. Satellites in low Earth orbit carry sophisticated cameras and capture images invaluable to ecologists tracking sea turtles, seals, albatrosses, whales, Emperor and Adélie penguins, polar bears, masked booby nests, wombats, sharks, marmots, and wildebeest. However, elephants are tricky; they inhabit complicated and changing landscapes and coat themselves with mud, making detection difficult. So, tech savvy researchers have begun using Convolutional Neural Networks (CNNs) - refined machine learning algorithms - to teach the computer to detect and count elephants automatically from satellite images like the one below. This is the present and future of wildlife surveying.

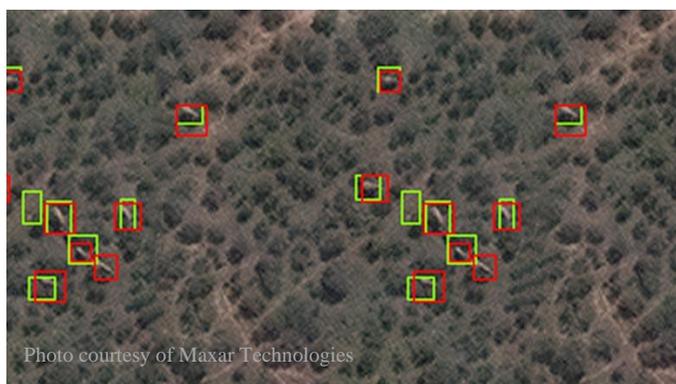


Photo courtesy of Maxar Technologies

The photo taken from space is elephants in woodland. Green rectangles show elephants detected by the algorithm; red rectangles show elephants verified by humans.

The modern study of natural history continues a long tradition. And Gilbert White was probably its first and most dedicated observer and recorder. He was born July

18, 1720, in the small village of Selborne, England, located about 50 miles southwest of London. An isolated place - then and still - Selborne is at the end of a series of rutted roads, deepening since Saxon times, overhung by the branches of ancient trees, paved with slick stone, icy or watercourses, depending on the season. White attended Oriel College, Oxford, and returned to Selborne to live at The Wakes, his family home, and make his living as a country parson attending to several nearby parishes.

When not attending to marrying, burying, and counseling his parishioners, Gilbert White recorded the flora and fauna, weather, and all other manner of natural phenomena during his daily rounds of Selborne and the surrounding region. He identified 439 local plant species, named the fishes in local streams, the local mammals, as well as the beetles, mice, ants and midges.

Indefatigably curious, White believed in direct examination. He dissected creatures to find out exactly what they ate, how they produced their sounds, whether they were male or female and why they died. Many he ate to see how they tasted! He noted seasonal presence and absence of species, but never solved their mysterious comings and goings to his satisfaction. He could not have imagined satellite tracking.

White long pondered the perplexing mystery of bird migration, particularly regarding the swallows, which was not understood, or even believed, at the time. How could such small birds have solved long distance navigation when humans had not? English naturalists proposed that swallows hid in crevices or old buildings for winter; Linnaeus thought that swallows slept beneath the water. White believed neither; he observed their comings and goings in his county and recorded the dates. He also

corresponded with his brother, Thomas White, stationed on Gibraltar, who watched and recorded bird flights to and from Africa.

White kept journals and notes of the flora and fauna around him for 18 years, but in 1768 began a new system based on a new publication received from its author, his friend and correspondent, Daines Barrington. *The Naturalist's Journal* was a checkerboard set of blank pages in which to record daily phenological data each week for an entire year - the first of its kind.

Initially, Gilbert White just filled in the boxes of his new journal, but then began writing more of his observations, as he pondered deeply what he saw on his daily rounds of Selborne and surrounding villages. He corresponded by mail with Barrington and zoologist, Thomas Pennant, discussing his observations and considered collecting them for a book.

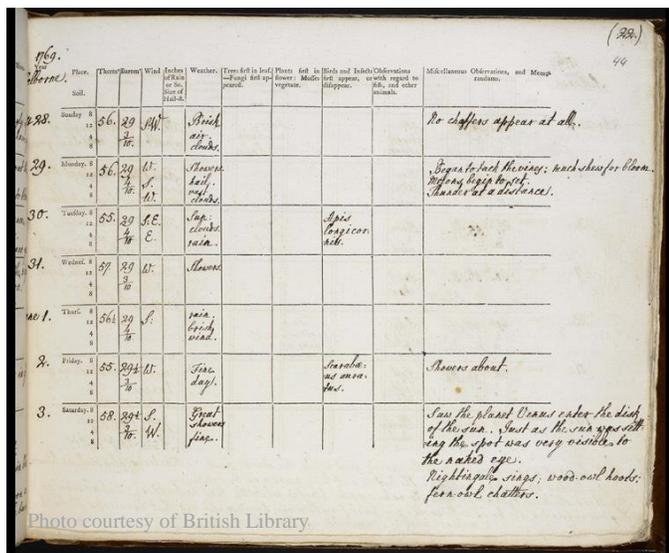


Photo courtesy of British Library

White wrote *A Natural History of Selborne*, published in 1789 by his brother Benjamin White, printer in Fleet Street, as a collection of letters to Barrington and Pennant; whether the text comes from actual letters is not known. This fascinating little book, influential beyond imagining, remains in print to this day through 300 editions. White's writing has inspired at least 10 generations of readers, including: Darwin, Coleridge, Wordsworth, Hawthorne, Thoreau, Burroughs, Woolf, and Auden. I am glad to have discovered it and recommend it to you.

History and natural history come alive when White describes the cutting down of 20 ancient oak trees, giants by modern standards, sold for 20 pounds apiece to provide logs for repair of the Hampton Court bridge (c. 1767). Logs needed to be over 50 feet long, at least 12 inches in diameter with no branches. In the center of this oak grove, "the Raven-tree" had hosted ravens for

generations, their nests protected by the tree's huge girth which was impossible to climb.

White wrote, "The saw was applied to the butt, the wedges were inserted to the opening, the woods echoed to the heavy blows of the beetle or mallet, the tree nodded to its fall; but still the [raven] dam sat on. At last, when it gave way, the bird was flung from her nest; and, though her parental affection deserved a better fate, was whipped down by the twigs, which brought her dead to the ground."

Selborne, the village, remains much unchanged. White's house is a museum - a pilgrimage destination for naturalists and the safe home for the original manuscript of his book. His *Naturalist's Journals* are safe in the British Library. Timothy the tortoise, among the cast of characters frequently mentioned, has generated his own following; his shell resides in the British Museum of Natural History. Gilbert White died June 26, 1793, and is buried in the Selborne churchyard with a simple headstone carved with G.W.

Gilbert White knew the creatures of Selborne, from careful, constant, and intimate observations. He identified a few new species because they were companions on his rambles, which took place either on foot or horseback. No noisy journeys by car to see nature; he was already there. Selborne was not wilderness, but it was his home.

While finishing *Selborne*, I noticed my first azalea blooms on Jan. 25. That seems early, but I have no records and no proof. Gilbert White inspires me with his diligent observations and records. I will never count elephants by satellite, but I could keep track of my own garden.

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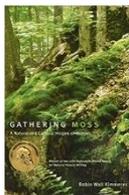
The Midden is posted on the GBAC-TMN chapter website: <https://txmn.org/gbmn/> two weeks prior to chapter meetings. Archived issues also on chapter website. If you prefer to receive *The Midden* in hard copy and are not currently receiving it, please contact: Julie Massey, julie.massey@ag.tamu.edu.

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Heritage Book Study - Review of *Gathering Moss: A Natural and Cultural History of Mosses* by Madeleine K. Barnes



When I think about native plants of Texas, it is the taller grasses and the forbs that come to mind, the masses of wildflowers blooming in the spring along the roadsides and in the open fields. We tend to think of the plants that make a larger visual statement, perhaps overlooking those that may be just under our feet, in the shade or in the shadows and crevices. These may be mosses, the simplest plant on earth.

Our guide on this reading journey of discovery about moss is the author Dr. Robin Wall Kimmerer, a scientist, distinguished professor, and a member of the Citizen Potawatomi Nation. This book is not what you might expect from a scientific writer. It is not a textbook on moss identification, but rather a series of essays combining science, native culture, research, personal experience, and environmental passion. Her lyrical writing incorporates story telling which helps us understand how mosses live and are connected within the whole environment. Dr. Kimmerer describes the important roles these small plants play in temperature regulation, air flow, soil nutrients, and moisture retention.

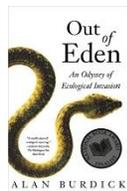
Dr. Kimmerer writes that a true moss (a bryophyte) is the most primitive of land plants - lacking flowers, fruits, seeds, roots or vascular system. How do they survive and even thrive in varying conditions? True identification may require at least a hand lens to see the leaf and plant structure in detail due to their diminutive size. According to scientists, these early mosses came from the sea and still carry with them a strong relationship with water, developing into the 22,000 species of moss worldwide. Writing about the indigenous ways of understanding nature along with stewardship and respect, Dr. Kimmerer has asked, "What is it that has enabled them to persist for 350m years, through every kind of catastrophe, every climate change that's ever happened on this planet, and what might we learn from that?"

I recommend this one for your reading interest, as Dr. Kimmerer shares her observations of these tiny common plants that are often overlooked and ignored despite their larger importance. Many species are facing total eradication by commercial interests without any understanding of how slowly their communities grow and reproduce and how essential their survival is to the overall health of the environment where they are located.

"Among other things, moss teaches that being small is not bad, and competition might not be the best thing." Robin Wall Kimmerer

And yes, we have moss in our very own area, growing on logs, trees, rocks, streams, ponds, and even in the cracks of sidewalks. So, take a closer look and if you would like more information about mosses in our state and local area, follow this link:

<https://www.texasbryology.com/bryophyta-mosses>

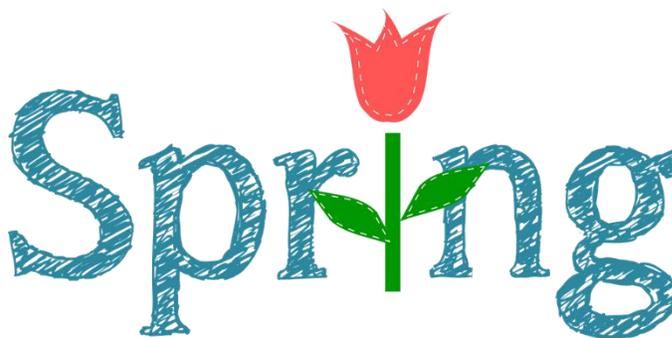


Our next Zoom AT meeting will be on Monday, April 5, to begin our discussion of *Out of Eden: An Odyssey of Ecological Invasion* by Alan Burdick with the first half, pages 1-155. On May 3, we will meet to discuss the second half of the book, pages 156-324. If you want to join us for either or

both of these AT opportunities, contact Madeleine Barnes at Mad2Btmn@aol.com to be added to the list for additional information and receive the Zoom meeting link and password. Our next reading selection will be *Bringing Nature Home: How You Can Sustain Wildlife with Native Plants* by Douglas W. Tallamy for June/July.



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



The Midden Deadline
for the next issue

April 26

April and May Activities

ADVANCED TRAINING OPPORTUNITIES

Chapter Meeting - April 1; Introduction to Lichens
Presenter - Dr. Manuela Dal Forno
6pm Social, 6:15pm Meeting, 7pm Speaker
Via Zoom; 1 AT hour

Just Enough Latin to Go Plant Shopping -
Wednesday April 7; 2-3:30pm via Zoom
Presenter: Carol Clark; 1.5 AT hours

Get Ready for the City Nature Challenge
Thursday April 22; 2-3:15pm via Zoom
Presenter: Scott Buckel; 1.25 AT hours

**Biology, Behavior & Pest Management of the Brown
Recluse Spider**
Wednesday May 19; 2-3:15pm via Zoom
Presenter: Dave Parsons; 1.25 AT hours

Ongoing

Heritage Book Study Group
First Monday of every month via Zoom
10am-noon; 2 hours AT
Contact: Madeleine Barnes 281-474-9406
See Pg. 15 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.

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University System, U.S. Department of Agriculture, and the County
Commissioners Courts of Texas Cooperating.



Answers to Insect Orders Top Ten Quiz

1. Odonata
2. Hymenoptera
3. Lepidoptera
4. Hemiptera
5. Coleoptera
6. Diptera
7. Neuroptera
8. Orthoptera
9. Homoptera
10. Siphonaptera