

The Midden

Roseate Spoonbill by Sheron Evans

Galveston Bay Area Chapter - Texas Master Naturalists

August 2022

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President's Corner by Pam House

Recently at Camp Wild, the campers and I had great fun making seed balls with Jim Duron. Joining a bit of clay, a bit of potting soil, a bit of water, with the seeds of coneflowers, we made hundreds of little spheres to be dried for future dispersal. Then we took previously dried seed balls out to a nearby location and tossed them as far as we could where they will wait for rain to melt the clay and allow the magic of growth.

I know... I tend to see metaphors in everything. But it was hard not to draw the parallels between the process of these seed balls with the investment we make in kids, hoping they will become the naturalists of the future. In so many of our projects we share our knowledge and enthusiasm with the young and encourage birders, sea turtle protectors, appreciators of the prairies, and wetland restorers for the future. For me, the joy and optimism of these endeavors helps to balance the gloom of some setbacks and dark days.

Speaking of joy, the June chapter meeting was a great success at marrying virtual and in person attendance (nearly evenly split). With the success of that experiment, we will plan to follow the same formula in August. You are welcome to join us on August 4 by Zoom or in person. We will open the Agri-Life Center early to allow time to shop at Mel's store and to say hello to friends. Check the flyer that wonderful Joanna will create for the Zoom link and the exact times. We will try to be done early enough that people can drive home while it is still light.

The registration for the [annual meeting](#) at the Omni in Houston (October 20 - 23) is due to open on August 1. I have been advised by those with experience that if you wish to attend, register as soon as possible - places go very quickly. Registration and hotel reservations will be via the state TMN website. It will be an in person event.

Finally, I'd like to give a special acknowledgement to one of the hardest working committees: the AT Committee led by Ellen Gerloff and, this year, her co-chair Mike Pettitt. Their response to the challenges presented by the COVID lockdowns was nothing short of amazing. The quality, scope, and fun of the presentations have made it easy to obtain AT hours and to add to our store of knowledge. I hope you all will join me in giving them special thanks: Ellen, Mike, Chuck Snyder, Mel Measles, T. J Fox, Madeleine Barnes, Sara Snell, Frank Budny, Verva Densmore, Cindy Howard, Gene Fisseler, Bruce Niebuhr, Lisa Belcher, and new class members: Tracy Walpole, and Robin Novak.



Next Chapter Meeting

August 4

Coastal Bird Initiatives

By

Kristen Vale
Texas Coastal Program
Coordinator
for American Bird
Conservancy

At
Extension Office*
and via Zoom

Women in Nature: Pauline “Polly” Mead Patraw, NPS Ranger-Naturalist

by Meade LeBlanc

It was love at first sight when Polly Mead first visited the Grand Canyon in 1927 on a botany field trip as a University of Chicago undergraduate. In a 1978 oral history, she remembered traveling to northern Utah, “We went all the way down to the north end of the Grand Canyon, and we saw these meadows out on the Kaibab Plateau and our professor, Dr. Cole, said this would be an interesting [thing] to study why the trees stop so abruptly towards the base of the meadow and then at the south end. It’s such a beautiful place, and we were all carried away with the beauty of the country. I decided I’d found a study for my master’s thesis. Then we went on, and I saw the Grand Canyon for the first time with this class. I walked out along the rim and suddenly I felt as though I discovered it. It was so wonderful.” That first encounter would lead to her many years’ involvement with the National Park Service.

After graduation with a BS in botany in 1928, she was given the choice to go to Europe or to return to the Grand Canyon. Polly chose to return to the Grand Canyon and spent the summers of 1928 and 1929 doing research on the North Rim for her master’s thesis. While there, she, reportedly, would take overnight trips exploring the canyon with nothing but a sleeping pad and a pistol. Another account stated that she took just a bedroll, canteen, and plant press, which seems more reasonable for a botany student.

She hiked from North Rim to South Rim by herself. The National Park website lists this hike as strenuous, with a distance of over 20 miles one way, and estimates it takes between 9 and 14 hours. She recalled, “I started on the North Rim and went through the canyon to the South Rim to meet the park naturalist Edwin McKee there. I wanted to know what work had been done previously. I had blistered feet, and I was very tired, but I loved it.”

In 1928 she was invited to attend the dedication ceremony for the newly constructed Grand Canyon Lodge on the North Rim. She recalled returning to camp from a day of field work to find the invitation. “I dug in my trunk, got out a dress, and got myself down to the North Rim. I ate dinner with Stephen Mather, the founder and first director of the National Park Service, Hebert [Heber] J. Grant, president of the Mormon Church, and Carl Grey, president of the Union Pacific Railroad. I was the only woman present.”

Polly went on to receive her MS in Botany from the University of Chicago in 1930. After graduation, she wanted to continue working in the Grand Canyon area. She applied first to the US Forest Service but was denied because she was a woman.

She then applied to the National Park Service (NPS) and was accepted. Later she learned that “knowing Mather didn’t hurt.” She recalled, “I read later, that [someone wrote on my application] ‘it will be remembered that Miss Mead was a guest of Stephen Mather at the dedication of the lodge.’ Women were not in favor at that time.” She was sworn in as a temporary ranger-naturalist at Grand Canyon National Park in August 1930, the first women ranger-naturalist at the park, earning \$1,860 per year.

As a ranger-naturalist Polly delivered campfire talks, guided walks, led auto caravan tours, planted wildflower gardens, collected and pressed plants for the park herbarium, and greeted visitors at the Yavapai Observation Station. She recalled, “I pretty much stuck to botany, although at one point I did lecture on geology, especially out at Yavapai. It was so wonderful to be able to lecture on the edge of the canyon and talk about the canyon, with the canyon in front of you. If I was feeling self-conscious all I had to do was look at the canyon.”

While working on the South Rim, Polly started dating Preston “Pat” Patraw, the park’s assistant superintendent (and the person who swore her into her ranger-naturalist position). They married on the day her temporary appointment ended on May 1, 1931. She recalled, “After we got married, I thought maybe I’d like to work for him, but he didn’t want me to. So, I didn’t, but there’s always plenty to do, even if you don’t get paid for it.” In fact, it was not unusual for the National Park Service to get a “Two for One” deal when park employees married. She published articles in the park’s *Nature Notes* newsletter and made a preliminary plant list for the park.



Photo courtesy of Wikimedia Commons and NPS

Preston’s career with the NPS took the couple from Grand Canyon to Zion National Park in 1932. In a 1978

interview, former NPS Director Horace M. Albright reflected on his decision to appoint Preston as superintendent at Zion. It was Polly's knowledge of Zion's resources that led him to select her husband. He remembered, "They made a lot of fun of me for a long time, that the director was really for Polly, not Pat." At Zion, Polly worked on a plant list for the park, published articles in *Zion Nature Notes*, and assisted a naturalist there in his botany work—all unpaid.

Preston's career with the NPS also took the couple to Bryce Canyon national park in 1932, Hot Springs National Monument (now national park) in 1938,

Washington, DC, in 1942, Santa Fe, New Mexico, in 1947, and finally back to Grand Canyon in 1954.

Polly stayed active in her botany pursuits, and in 1952 published *Flowers of the Southwest Mesas*, an area covering Colorado, Utah, south to Arizona and New Mexico, west to Nevada and parts of eastern California, and east to western Kansas, Oklahoma and Texas. For decades, she gave lectures to civic organizations on the subject. In 1988 Polly was named one of Santa Fe's "Living Treasures."

She died on March 18, 2001, in Santa Fe.

Camp Wild 2022 by Wayne O'Quin

Camp Wild at Galveston Island State Park returned after a two-year absence. Students completing the fourth grade attended the camp sponsored by the Friends of Galveston Island State Park, Texas A & M AgriLife and Texas Master Naturalists.

Fifty-six students from the area participated in the camp held on June 6 thru 10, from 8:00 am to 1:00 pm. The camp was free for the campers and included transportation from local schools and carefully-planned food services.

Seventy-seven volunteers, mostly master naturalists, made it possible to provide fifteen amazing nature activities for all students.

Especially noteworthy, ten of the master naturalists making the camp possible were from the 2022 training class!

Thanks to all who made Camp Wild 2022 a safe, exciting and memorable experience!



Photo by Chris Abastas



Photo by Joni Fenner



Photo by Larry Brasfield

What is the U.S. Army Corps of Engineers? by Sharon Manzella Tirpak

Many don't realize that the U.S. Army Corps of Engineers manages more public lands than the National Park Service.

The Corps was established as a separate permanent branch of the Army in March 1802 to deliver vital engineering solutions, in collaboration with our partners, to secure our nation, energize our economy, and reduce disaster risk.

The Corps' missions include military (contingency support and construction), emergency operations (disaster support and recovery), civil works (water resources development), hydropower generation and regulating development along navigable waters and waters of the United States (wetlands). In addition, the Corps has environmental stewardship of millions of acres of public lands and manages recreational areas.

The Corps, led by the military, has a workforce of about 35,000 Army civilians. It is divided into nine divisions (one in Europe), which are supported by 44 districts and eight Lab and Design Centers.

The Galveston District, established in 1880, currently employs over 500 engineers; biologists; real estate, contracts and resource management specialists; attorneys; and admin staff spread along the Texas coast.

Its military leadership is made up of the district commander with a rank of colonel and a deputy district commander, a lieutenant colonel. The military leadership generally rotates through every three years. All others are Army civilians, except for a few captains who work at the staff level.

The district's area of responsibility includes 50,000 square miles, including 700 miles of coastline from the Rio Grande to the Sabine River and about 150 miles inland. The district maintains more than 1,000 miles of channel, including 270 miles of deep draft (> 12 feet) and 750 miles of shallow draft channels and covers 49 counties and 16 congressional districts. A small portion of Southwest Louisiana is also within the district area, but only for the evaluation of permits under the Regulatory Program.

The Corps is a government agency with which people have a love/hate relationship. I believe this is because they don't understand the processes and limitations of the agency.

Take for example, the afore-mentioned Corps' Regulatory Program, which regulates work in navigable waterways under Section 10 of the Rivers and Harbors Act of 1899 and the placement of fill material in waters of

the United States, including wetlands, under Section 404 of the Clean Water Act (1972). Under this program, Department of Army permits are issued to persons or entities that would like to dredge or construct a structure over a navigable waterway or develop property, utilizing non-federal funds, where some or all the property includes wetlands.

The Corps follows established laws and regulations while evaluating the environmental impact of any proposed projects. Early discussions with applicants include representatives from resource agencies such as National Marine Fisheries Service, U.S. Fish and Wildlife Service, Environmental Protection Agency, Texas Parks and Wildlife Department and Texas Center for Environmental Equality.

Most of the permit application proposals are modified as they progress through the process. Discussions may lead to a complete re-drawing of the project plans or reducing the project's footprint to avoid and/or minimize impacts to the waterway or wetlands. If there are still impacts once everything is considered, mitigation is discussed.

Some simplified or standardized work can go through an abbreviated evaluation process utilizing nationwide or general permits that have been coordinated with the public at the program level. However, for more complex proposals that require individual permits, public input is solicited.

The Regulatory Program does not perform economic analyses on the submitted project plans. Since the work is being done by a private entity, it is assumed that the applicant has determined the project is economically viable.

Most requested permits are approved because the Corps works with all parties to reduce environmental impact of proposed work. If a permit is denied, that would be considered a government "taking" of the property.

The civil works side of the Corps works with public entities, such as ports, cities, counties, state agencies, etc. that approach the Corps with a problem such as a channel needing to be dredged or modified, shoreline erosion or flooding within a community (inland or coastal), or needing help with restoring an ecologically sensitive area.

Proposed civil works projects must show that there is federal interest, meaning that that the project will provide benefits to the nation. These types of projects are cost-shared, with a portion of the funds coming from a non-federal sponsor and a portion coming from the federal government.

In these projects, the Corps completes environmental, economic, and engineering analyses. Feasibility studies are conducted, and, in most cases, an Environmental Impact Statement is required to disclose project impacts and to help determine the plan with the least number of environmental impacts and the most economical viability.

of the work the agency has been charged to oversee. It can be difficult to find a balance between private property owners wanting to develop their property or with public entities providing economic opportunity in their communities while keeping impacts to the environment to a minimum.

A cost benefit analysis is completed, and for the project to be recommended to Congress for authorization, it must show a positive benefit to cost ratio. As with Department of Army permits, resource agencies are involved and coordination with the general public occurs throughout the study period and into design and construction. Proposed project plans can and have changed based on resource agency and public input.

The many engineers, biologists, economists, and others that work for the Corps also live in the communities where projects are located. They care as deeply as anybody that their community has a balance of taking care of the environment and being a thriving and growing community with opportunities for all.

Corps projects, whether they are issued permits or a civil works project, can be controversial because of the nature

For more information on the Corps, please visit www.usace.army.mil and for detailed information on the Galveston District visit www.swg.usace.army.mil.

Civil Works Value to the Nation



Volunteer Plants by John Jons

What is a volunteer plant? J. Carroll in *Gardening Know How* provides a nice comprehensive definition: “Volunteer plants are those that come up in the garden with no effort on your part. They germinate from seeds dropped by flowers in previous years or seeds can arrive stuck to the fur and skin of small animals. Birds that visit your garden bring seeds contained in berries and fruit that they ate at their last stop. Plants can sneak under fences by means of underground stems and rhizomes. Regardless of how they found your garden, once they arrive you must decide which ones are keepers and which ones you need to eliminate.” Sometimes undesired volunteer plants are unaffectionately called weeds.

Volunteer plants tend to be “specialist” plants, contrary to what the average gardener may think. Most volunteer plants will only grow successfully in certain sites - sun or shade - and soil conditions - wet, dry, sandy, or compact, poor or rich, acidic or alkaline - that meet their particular and often very specific growing and survival needs. Some volunteer plants even need a particular soil mineral concentrated within specific ranges or for the soil to be either bacterial or fungal dominant. For the savvy gardener, a volunteer plant’s particular growing needs can indicate specific information about the garden’s site and the garden’s soil.

Farmers have long known that if they have a preponderance of chickweed (*Cerastium*), chicory (*Cichorium*), common groundsel (*Senecio vulgaris*), common horehound (*Marrubium vulgare*) and lamb’s quarter (*Chenopodium berlandieri*) that their soil is quite fertile. By contrast, if the predominant weeds are daisies (*Chrysanthemum leucanthemum* now *Leucanthemum vulgare*), wild carrots (*Daucus carota*), mugwort (*Artemisia vulgaris*), common mullein (*Verbascum*), wild parsnip (*Pastinaca*), wild radish (*Raphanus raphanistrum*) and biennial wormwood (*Artemisia biennis*), their soil may have a low fertility. Also, a dry spot growing weeds typical of wet conditions may indicate that this particular location will be wet at some time during the year.

Perennial volunteer plants are often better indicators than annual volunteer plants as they have demonstrated the ability to survive at a particular site and soil for more than one year. And, of course, some volunteer plants will grow almost anywhere, such as dandelions (*Taraxacum*). Mineral prospectors have determined their potential underground concentrations by knowing which volunteer plants prefer certain soil chemicals.

So the next time that you pull a volunteer plant - think about what that volunteer plant is telling you.

Site / Soil Relationship	Plant/Other
Wet Soil	Cattail (<i>Typha latifolia</i>), Horsetail (<i>Equisetum arvense</i>), Lady's-thumb (<i>Polygonum persicaria</i>), Pennsylvania smartweed (<i>Polygonum pennsylvanicum</i>), Tall buttercup (<i>Ranunculus acris</i>), Creeping buttercup (<i>Ranunculus repens</i>), May apple (<i>Podophyllum peltatum</i>), Thyme-leaved speedwell (<i>Veronica serpyllifolia</i>), Canada goldenrod (<i>Solidago canadensis</i>), Lance-leaved goldenrod (<i>Solidago graminifolia</i>), Jewelweed (<i>Impatiens pallida</i>), Meadow pink (<i>Lychnis flos-cuculi</i>), Coltsfoot (<i>Tussilago farfara</i>), Marsh mallow (<i>Althaea officinalis</i>), Sweet flag (<i>Acorus calamus</i>), Hedge Bindweed (<i>Convolvulus sepium</i>), Bull sedge (<i>Carex lasiocarpa</i>), Ox-Eye Daisy (<i>Leucanthemum vulgare</i>), Docks (<i>Rumex</i>), Foxtail (<i>Hordeum jubatum</i>), Goldenrods (<i>Solidago</i>), Groundnut (<i>Apios americana</i>), Poison Hemlock (<i>Conium maculatum</i>), Joe-pye weed (<i>Eutrochium purpureum</i>), Meadow Sweet (<i>Astilbe</i> sp), Mosses (all species), Stinging Nettles (<i>Urtica urens</i>), Ragwort or Tansy (<i>Jacobaea vulgaris</i>), Sheep sorrel (<i>Rumex acetosella</i>), Silvery cinquefoil (<i>Potentilla argentea</i>), Black Willow (<i>Salix</i>), Rushes (<i>Juncus</i>), Sedges (Cyperaceae), Yellow nutsedge (<i>Cyperus esculentus</i>), Dollarweed (<i>Hydrocotyle umbellate</i>), Mouse-ear Chickweed (<i>Cerastium</i>), Annual bluegrass (<i>Poa annua</i>), Virginia buttonweed (<i>Diodia virginiana</i>), Spotted spurge (<i>Euphorbia maculata</i>), Knotweed (<i>Fallopia</i>)
Sandy Soil	Sandbur (<i>Cenchrus</i>), Dog fennel (<i>Eupatorium capillifolium</i>), Cornflower (<i>Centaurea cyanus</i>), Yellow toadflax (<i>Linaria vulgaris</i>), Small nettle (<i>Urtica urens</i>), Maltese thistle (<i>Centaurea melitensis</i>), Arrow-leaved Wild Lettuce (<i>Lactuca pulchella</i>), Field Bindweed (<i>Convolvulus arvensis</i>), White Cockle (<i>Lychnis alba</i>), Goldenrods (<i>Solidago</i>)

Dry Soil	Virginia pepperweed (<i>Lepidium virginicum</i>), Rough cinquefoil (<i>Potentilla norvegica monspeliensis</i>), Potato vine (<i>Ipomoea pandurata</i>), Thistle (<i>Cirsium</i>), Purslane (Portulacaceae), Bermuda grass (<i>Cynodon dactylon</i>) , Crab grass (<i>Digitaria</i>) , Chickweed (<i>Stellaria media</i>) , Yarrow (<i>Achillea millefolium</i>), Sheep sorrel (<i>Rumex acetosella</i>) , Fragile fern (<i>Cystopteris fragilis</i>), Poverty grass (<i>Sporobolus vaginiflorus</i>), Mustard (Brassicaceae), Ox-Eye Daisy (<i>Leucanthemum vulgare</i>), Carpetweed (Molluginaceae) , Pigweed (<i>Amaranthus</i>)
Shade	Poison ivy (<i>Toxicodendron radicans</i>), Garlic (<i>Allium sativum</i>) , Mustard (Brassicaceae), Honeysuckle (<i>Lonicera</i>), Annual bluegrass (<i>Poa annua</i>) , Chickweed (<i>Stellaria media</i>) , Mouse-ear Chickweed (<i>Cerastium</i>), Nimblewill (<i>Muhlenbergia</i>), Speedwells (<i>Veronica persica</i>) , Violets (<i>Viola</i>), Ground ivy (<i>Glechoma</i>)
Infertile Soil	Black medic (<i>Medicago lupulina</i>) , Shepherds purse (<i>Capsella bursa-pastoris</i>) , Plantain (<i>Plantago</i>), Crab grass (<i>Digitaria</i>) , Yarrow (<i>Achillea millefolium</i>), Sheep sorrel (<i>Rumex acetosella</i>) , Moss, Ragweed (<i>Ambrosia</i>), Ox-Eye Daisy (<i>Leucanthemum vulgare</i>), Pearly everlasting. (<i>Anaphalis</i>) , Mugwort (<i>Artemisia vulgaris</i>) , Common mullein (<i>Verbascum</i>) , Wild parsnip (<i>Pastinaca</i>) , Queen Anne's Lace (<i>Daucus carota</i>) , Wild radish (<i>Raphanus raphanistrum</i>) , Biennial wormwood (<i>Artemisia biennis</i>), Clover (<i>Trifolium</i>), Dandelion (<i>Taraxacum</i>)
Fertile Soil. (pH of 6.2 to 7.0)	Henbit (<i>Lamium amplexicaule</i>) , Dandelion (<i>Taraxacum</i>), Clover (<i>Trifolium</i>), Ostrich fern (<i>Matteuccia</i>), Annual bluegrass (<i>Poa annua</i>) , Bentgrass (<i>Agrostis canina</i>) , Bermuda grass (<i>Cynodon dactylon</i>) , Crabgrass (<i>Digitaria</i>) , Mallow (<i>Althaea officinalis</i>), Lamb's quarter (<i>Chenopodium berlandieri</i>), Chickweed (<i>Stellaria media</i>) , Common horehound (<i>Marrubium vulgare</i>) , Foxtail grass (<i>Alopecurus</i>) Chicory (<i>Cichorium</i>) , Red root pigweed (<i>Amaranthus retroflexus</i>), Burdock (<i>Arctium</i>) , Common groundsel (<i>Senecio vulgaris</i>) , Purslane (Portulacaceae)
Compact Soil	Field Mustard (<i>Brassica nigra</i>), Horse Nettle (<i>Solanum carolinense</i>), Morning Glory (<i>Ipomoea purpurea</i>) , Pennycress (<i>Thlaspi arvense</i>), Pineapple Weed (<i>Matricaria discoidea</i>), Quack Grass (<i>Elymus repens</i>) , Annual bluegrass (<i>Poa annua</i>) , Carolina geranium (<i>Geranium carolinianum</i>), Chickweed (<i>Stellaria media</i>) , Bindweed (Convolvulaceae), Knotweed (<i>Fallopia</i>), Morning glory (<i>Argyreia</i>) , Lamb's quarter (<i>Chenopodium berlandieri</i>), Plantain (<i>Plantago</i>), Nettle (Urticaceae), Dandelion (<i>Taraxacum</i>) Quack Grass (<i>Elymus repens</i>) - Heavy in clay Curly dock (<i>Rumex crispus</i>) - Low in calcium, extremely high in magnesium, phosphorous and potassium
Acidic Soil (Below a PH of 7.0)	Ox-eye daisy (<i>Leucanthemum vulgare</i>), Curly dock (<i>Rumex crispus</i>), Red / Sheep sorrel (<i>Rumex acetosella</i>), Sow thistle (<i>Sonchus</i>), Prostrate knotweed (<i>Polygonum aviculare</i>), Lady's-thumb (<i>Polygonum persicaria</i>), wild strawberries (<i>Fragaria</i>), Plantain (<i>Plantago major</i>), Rough cinquefoil (<i>Potentilla norvegica monspeliensis</i>), Silvery cinquefoil (<i>Potentilla argentea</i>) , Hawkweeds (<i>Hieracium aurantiacum</i>), Knapweeds (<i>Centaurea</i>), Knotweed (<i>Fallopia</i>). Chickweed (<i>Stellaria media</i>) , Sweet fern (<i>Comptonia asplenifolia</i>), Common mullein (<i>Verbascum</i>) , Pearly everlasting (<i>Anaphalis</i>)
Alkaline Soil (Above a PH of 7.0)	Field peppergrass (<i>Lepidium virginicum</i>), Goosefoot (<i>Chenopodium</i> species), Gromwell (<i>Lithospermum officinale</i>) , True chamomile (<i>Anthemis nobilis</i>) , Bladder campion (<i>Silene latifolia</i>) , Poppy (Papaveraceae), Woodyaster (<i>Xylorhiza</i>), Sagebrush (<i>Artemisia tridentata</i>), Cow parsley (<i>Anthriscus sylvestris</i>), Chickweed (<i>Stellaria media</i>) , Spotted spurge (<i>Euphorbia maculata</i>), Chicory (<i>Cichorium</i>)

Saline Soil	Shepherd's purse (<i>Capsella bursa-pastoris</i>)
Bacterial Dominant Soil	Green annuals and perennial plants - <i>Freshly disturbed soil; tilled, new housing developments</i>
Fungal Dominant Soil	Woody and perennial plants - <i>Soil undisturbed for a long period of time, untilled, old forests</i>

Table Notes:

- 1) The reference material used to create this table may have only listed the "local" (common or vernacular) name. I have attempted to identify and list the genus (*scientific - Latinized*) name and/or the species name if known.
- 2) It is prudent to keep in mind that some of the listed plant families may include multiple genera and have many species. For example the poppy family (*Papaveraceae*) includes 42 genera and approximately 775.
- 3) Some plants have multiple (common or vernacular) names. For example red sorrel (*Rumex acetosella*) is also called sheep's sorrel, field sorrel and sour weed.

Editor's Notes:

- 1) Plant species listed in bold type are not native to North America. You can see that many of our weeds are not from here; most have likely been naturalized for a long time. TMN founding father Barron Rector said that of the 5000 plant species in Texas, half are not native.
- 2) A few genera, such as dandelion (*Taraxacum*), have species native to North America; however, the most common dandelion species, (*T. officinalis*) and (*T. erythrospermum*), common dandelion and red-seeded dandelion, though ubiquitous, are not our native species.
- 3) Likewise, individual species from large plant families, such as the Brassicaceae, Cyperaceae, Portulacaceae - mustards, sedges, and purslanes - may be spread throughout the world, although all species will not volunteer in your garden.
- 4) Some adaptable weeds may be found in many growing conditions and soil types. Some crop up with our wetland and prairie restoration plants; we must know them to avoid introducing them into the field.

Soils, Weeds and Invasions by Diane Humes

Fifty years ago astronauts collected lunar soil samples from the Apollo 11, 12, and 17 landing sites, some of which have remained in cold storage, sealed and untouched, just down the road at Johnson Space Center, waiting for the right time and technology to open them up. In February, the science curation team took the first step and carefully searched for volatile gases that may have been preserved within the soil tube; then in May they opened the soil samples.

What is lunar soil? It is called regolith, indicating it is rocky and sharp. And, Earth soil scientists make a strong distinction between Earth soil and extraterrestrial regolith. Soil, as it is defined on Earth, has had millions to billions of years in which weather and living organisms - plants, animals, fungi, and bacteria - have transformed it from its parent rock into many types and layers of soil, full of nutrients and water and organic substances. As well, living organisms have adapted to all kinds of soil.

People have not yet gone to Mars, but, in the movie, *The Martian*, potatoes grew just fine as long as the Martian

regolith was amended with organic matter - plus plenty of water and warm temperatures inside the habitation. (If you haven't seen the movie, you should.) In other words, outside the HAB was regolith, while inside was Martian soil. (You really should see that movie!)

NASA is planning the Artemis mission to make a Base Camp on the moon's South Pole, which may contain useable quantities of ice - a vital element for living on the Moon. And, if you could grow crops, even better!

So, NASA botanists sowed minute quantities of the lunar regolith samples with *Arabidopsis thaliana*, the thale cress or mouse-ear cress, to see what would grow. This weedy little plant, a member of the Brassicaceae - mustard family - is a small species found along roads and in disturbed areas worldwide. Originating in Europe, Asia and Africa, it made its way to North America with the first European colonists in the 17th century. It is a cool season annual with a short life cycle; it grows from seed to producing seed in six weeks. An ideal and popular model plant for biological and genetic research, it was

the first plant to have its DNA sequenced and has about the smallest genome of any complex multicellular organism. It can be grown conveniently in small spaces - NASA scientists used 1 gram samples - and produces several thousand seeds by self-pollination.



Photo courtesy of NASA

To everyone's delight, the seeds sprouted instantly in the lunar regolith and the control - a lunar simulant created

from volcanic ash. Plants grew happily, although not quite as robustly in the actual regolith, with some variation between samples. Growth was better in the Apollo 12 and 17 samples than the Apollo 11 samples. What does that say about differences at the landing sites?

Some plants - weeds or not - have very interesting adaptations to living on soils, for example, with high concentrations of metals - iron, nickel, chromium, and cobalt. Some species actively uptake these metals, seemingly not harmed by their toxicity; prospectors use their presence as clues for mining opportunities. Weeds are often in the eye of the beholder; one source suggests that only about ten percent of all plants known on Earth have a utilitarian value. Does that mean that the rest of them are weeds?

Weed species may be cosmopolitan, having hitched rides on many conveyances to become established around the globe. None has invaded another planet yet (that we know) but, it is interesting that we already know that they could grow on another world.

Haiku Treasures by Carolyn Miles

Thank you to everyone who sent a haiku! Who knew we had so much poetic talent in our chapter? Look for blue boxes in this and future *The Midden*.

Many of the haiku reflect on a specific season or event, so we will print them as the seasons change.

Music of morning
Purple Martin dawnson
Fly, fly, joyful flight

by Verva Densmore

Waugh Bridge bats emerge
Soaring high over Houston
Into the night sky

by Doris Heard

The beach is so calm
It reminds me of a dream
Ripples on water

by Davis Clay

A haiku is a form of Japanese poetry consisting of three short lines that do not rhyme that traditionally evoke natural imagery. (Source: yourdictionary.com)

Famous example from Matsuo Basho:
An old silent pond,
A frog jumps into the pond,
splash! Silence again.

Send your haiku to *The Midden* editor, [Diane Humes](#)

Traditional Structure

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



Summer Nature Camp Funny Fill-In (Part 1) by Rebekah Gano

If you have ever participated in an outdoor summer camp or thought about volunteering at one, this funny fill-in-the-blank activity is for you! Write down a word to fit each category. Then use your list to fill in the story on the next page.

- | | |
|--|---------------------------|
| 1. Electronic device _____ | 9. Place _____ |
| 2. Adjective _____ | 10. Plural noun _____ |
| 3. Name of nature center or park _____ | 11. Noun _____ |
| 4. Name of person _____ | 12. Plural noun _____ |
| 5. Adverb _____ | 13. Adverb _____ |
| 6. Number greater than one _____ | 14. Past tense verb _____ |
| 7. Adjective _____ | 15. Past tense verb _____ |
| 8. Adjective _____ | |

Summer Nature Camp Funny Fill-In (Part 2) by Rebekah Gano

Use your list of words from above to complete this silly story!

I was checking my e-mail on my 1. _____ and got a message from the master naturalists asking for volunteers to help with summer nature camp. I was 2. _____. "Maybe I should give it a try," I thought.

So a few weeks later, I stood outside at 3. _____ with my friend 4. _____, 5. _____ waiting for the campers to arrive. Soon, the place was bustling with 6. _____ energetic children. After going over some 7. _____ tips and

making sure everyone's water bottle was 8. _____, we hiked to (the) 9. _____.

We observed the plants, animals and 10. _____ there. To our great surprise a(n) 11. _____ flew overhead! The campers drew pictures of what they saw in their nature 12. _____. The rest of the day passed 13. _____. We participated in hands-on nature lessons, 14. _____, snacked, and 15. _____. I can't wait to do it again next summer!

Upcoming Fall Training Class by Gene Fisseler

We are trying something a little different starting in August. We're conducting a Fall Training Class. The class will run from August 25 for ten Thursday nights. Plus we've scheduled three Saturday field trips to Galveston Island State Park, Armand Bayou Nature Center, and Texas A&M-Galveston during that window.

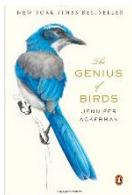
Our hope is to accommodate folks who've wanted to become Master Naturalists but not been able to participate in our daytime class offerings. And, we already have a list of almost 60 potential trainees.

Many of our training team positions are filled, but if helping out with this nighttime class is something that appeals to you, please contact [Julie Massey](#), [Cindy Howard](#), or [Gene Fisseler](#).



Photo by Gene Fisseler

Heritage Book Study - Review of *The Genius of Birds* by Madeleine K. Barnes



You may or may not be an avid “birder”, but you will be intrigued by these amazing creatures with which we share the world.. You may have identified a few or many species using what is referred to as “field marks” or distinctive markings, colors, and highlights. If you are a beginning birder, you may read or hear from experts that while these are very helpful, the size, shape, and the behavior of the birds can help you to distinguish and identify the birds even more. The *Genius of Birds* addresses aspects of bird behavior.

Some interesting facts about this book are: it has been translated in 25 languages, was a New York Times bestseller, named as one of the 10 best nonfiction books by *The Wall Street Journal*, a Best Science Book of 2016 by National Public Radio's "Science Friday", a Best Book of the Year by *The Spectator* and the *National Post*, and a Nature Book of the Year by the *London Sunday Times*. The author, Jennifer Ackerman, has been writing about science, nature, and health/human biology for over thirty years and has written several other books and her work has appeared in numerous publications.

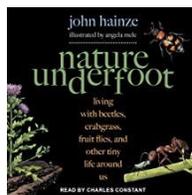
In this book, Ackerman's writing focusses on sharing with the reader the latest scientific studies and understanding about bird intelligence. Yes, that could be dry reading, but she uses her own insight, humor and anecdotes to keep it readable and interesting. She explains the complexity and species adaptations to help us learn and appreciate the smaller-sized, but no less amazing “bird brains” that are in our backyards and neighborhoods.

How do birds learn - is it a combination of instinct and knowledge or learning through trial and error? Do bird brains function differently when comparing species? The other part to this question is the reason why - to be more attractive to a mate, to be more successful in securing food, or by outwitting a predator and surviving? She explores how birds share learning and mentor each other. Some have developed techniques for shaping and using tools to secure food or build nests. Of particular note is the chapter about bird species learning to sing through tutoring and mimicry, producing lengthy and complex songs and sounds while repeating them without error over and over. Are you aware that bird species have regional dialects as well? This was news to me.

Perhaps you are curious as to why a bird would build an elaborate bower and decorate it to entice and impress a female and how this relates to species' survival? What does song complexity and the intense effort to perform it flawlessly have to do with being a more attractive mate and better parent? Would you be interested to know more about how birds successfully migrate long

distances, construct maps, and perform navigation, given their brain size?

It is my hope that you will add this book to the top of your reading list, and I hope I haven't given too much away that you may learn that birds are smarter than I, for one, ever perceived. Ackerman included the following quote from Einstein, “As a human being, one has been endowed with just enough intelligence to be able to see how utterly inadequate that intelligence is when confronted with what exists.” As others have shared, once you read this book, you will never look at birds in the same way again.



Our next Zoom AT will be held on Monday, August 1 to begin our discussion of *Nature Underfoot: Living with Beetles, Crabgrass, Fruit flies, and Other Tiny Life Around Us* by John Hainze (2 months reading), with the first half, pages 1-105, Chapters 1-4

plus the Preface. Due to the Labor Day holiday, the following Zoom AT will be held on Monday, September 12, to close our discussion of this book with the second half, pages, 107-218, Chapters 5-8. If you want to join us for either or both of these AT opportunities, please contact [Madeleine Barnes](#) to be added to the list for additional information and to receive the Zoom meeting link and password.

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

August 29

A gentle wind blows
Cooling off the gardener
Wind chimes add music.

by Beth Frohme

Two big eyes long tail
Green lizard outside my window
Quick catch that slow fly

by Rose Merle Symmank

August and September Activities

ADVANCED TRAINING OPPORTUNITIES

Chapter Meeting - Aug 4; Coastal Bird Initiatives
Presenter: Kristen Vale of American Bird Conservancy
Watch your email for meeting time.
At Extension Office* and via Zoom; 1 hour AT

War of the Worlds: Insects vs Alien Invaders
Tuesday July 26; 2-3 pm via Zoom; 1 hour AT
Presenter: Laurie Lomas Gonzales

Robert L.B. Tobin Land Bridge at Phil Hardberger Park
Wednesday August 31; 2-3 pm via Zoom; 1 hour AT.
Presenter: Chuck Saxer

The Texas Coastal Exchange 1000 Mile Living Shoreline Project
Tuesday Sept. 20; 6-7:15 pm via Zoom; 1.25 hours AT.
Presenter: Jim Blackburn

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. 11 for meeting dates and books.

STEWARDSHIP OPPORTUNITIES

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

EDUCATION - OUTREACH OPPORTUNITIES

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

Partner and Associate Programs - Many organizations sponsor guided walks and education programs or need volunteers to staff their nature center. Go to <http://txmn.org/gbmn/partners/> for the list, then click on the link to the organization's website.

CHAPTER INFORMATION AND RESOURCES

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

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

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

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

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

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

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



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The Midden

Published bimonthly by the Galveston Bay Area Chapter - Texas Master Naturalists. The purpose of *The Midden* is to inform, communicate and educate chapter members and the community. If you have an article that contributes this purpose or want to join the team, please contact Diane Humes, treimanhumes@gmail.com.

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

The Midden is posted on the GBAC-TMN chapter website: <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.

Midden Team

Diane Humes, Editor

Madeleine K. Barnes	Lana Berkowitz
Verva Densmore	Sheron Evans
Rebekah Gano	Meade LeBlanc
Carolyn Miles	Chuck Snyder

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