Prairie Partner News

July-Sept 2018

A publication for and about Blackland Prairie Texas Master Naturalists

The "Summer Edition" of our newsletter is about to be "hot off the press" and I know it will be just a "tip of the iceberg" of all the amazing activities that our chapter has been up to these past few months, from education to restoration projects and completing the necessary training to join our wonderful cause. I congratulate all of your efforts and encourage you to take the time to share photos, written reports, reflections, poems and more for publication in our next newsletter. Special kudos to our fearless leader, Mike Roome and Dave Powell for their 4000 plus hours of service, for those meeting other key milestones and our class of 2018 graduates! Greg Tonian, Editor

"When I look at the earth in pictures taken from space,

I see no boundaries, no border patrols,

No sign of ownership of the land or the seas.,

Or the mountains,

Or the lakes or rivers;

I feel like a planetary citizen."

Shurli Grant, Planetary Citizens in Rainbow

Published in Meditations of Ralph Waldo Emerson: Into a Green Future by Chris Highland

June meadow scene at Heard Natural Science Museum and Wildlife Sanctuary

CONGRATULATIONS CLASS OF 2018!

April 27 – May 3 Flora and Fauna of the Blackland Prairie

Your classes are nearly done, a few field trips to go.

Think of the knowledge that you can now bestow.

The speakers were informative and expanded your view;

Some reinforced topics you already knew.

But now you have resources and much more:

You've increased your friendships by nearly two score.

You'll start this last class with a guided walk;

The Heard's flora and fauna will be the topic of talk.

Then back for some feasting, certificates and pins:

A bit of 'all done sadness' but mostly big grins!

Thank you for coming and being a part of this group.

With AT and VH you will complete the loop.

Keep coming to chapter meetings to learn more;

Read about Naturalists who came before.

We've worked hard to get you to this place.

So now we need you to keep up the pace.

Best to you from the Board and the committees,

The chapter members, the speakers (both serious and witty),

The sponsors, your families (they helped too);

Class Reflection "Pome" by Sally Evans

Reflections on the "First 4,000 Hours" - article written by Chapter President Mike Roome

I suppose I was not unlike many new retirees when I hung up 23 years in public education in 2012. After all, this was my second 20-plus year career, and I felt really ready and a little entitled to leave the workaholic life behind. And I had a plan—do a little traveling, finally get to those long overdue household repairs and chores, turn all those family photographs and 35 mm projector slides (sorry young folks, I know you don't know what this is—Google it) into great Ken Burns-style movies, and so on. Sure, thoughts of volunteering were there also, jokingly as a Walmart greeter and, more seriously, perhaps in some capacity with a hospital such as Scottish Rite Children's Hospital. Well, for various reasons, the traveling never really came to pass, those chores got finished quickly, and the pictures are still on the top shelf in a back closet. But the volunteering? Well, that became a whole other thing in 2013 when I became a master naturalist.

That year I found a definite focus for my volunteer efforts. Plus, I was obligated to put in at least 40 hours a year. Now that first 40 hours has multiplied a 100-fold. While recognition for reaching the 4000-hour milestone with its shiny gold dragonfly pin with ruby and the US Presidential Volunteer Service Award is greatly appreciated, this milestone, as all the others, has always been for me more about the journey than the destination. The true rewards have come from engaging in new experiences and building relationships with others of like-mind. So, please indulge me as I share a few of the insights and memories I have garnered from my volunteering experience along this journey.

My first volunteer "gig" was with the Heard Natural Science Museum's animal care department. A commitment of four hours every other week evolved over 5 years into three days each week totaling 12 to 15 hours. And the work--feeding, caring for, and cleaning up after a myriad of species from Madagascar cockroaches to native white-tailed deer--is challenging and can be hard. Yet, what I have gained from this volunteer experience is immeasurable. I have seen how a great, but small museum with limited funds has been able to survive and prosper largely and perhaps only because of great volunteers. I have found membership in a true family with paid and unpaid members, most much younger than me, but all full of passion and caring spirits for what they do. And then there are the animals. Working with and observing them has given me great respect for their adaptations and niche in our environment. As the supposedly "superior" species, I am humbled by what I have seen in and learned from these fellow creatures.

In addition to my animal care work, I have volunteered as a trail guide at the Heard, the Blackland Prairie Raptor Center, and for the City of Plano's Parks and Recreation Department. A nature trail guide is largely a teacher armed with a bag full of nature's goodies—tree cookies, acorns, snake skins, etc.—and a walking stick. After 20 years of teaching high schoolers, I now most enjoy the little ones, 2nd and 3rd graders. Their enthusiasm and energy level are high, and they still have a sense of wonder at all things. They make me feel young and make me laugh with them and at myself. And they are always surprising, such as the time one small girl shyly asked me while we were looking at stuffed animals on display at the entrance to the museum if they were "pretend" animals. In my best trail guide manner, I explained that these animals had once been alive but were now on display, so we could see what they looked like up close. Then she had a second question to which I was fully prepared to give my best trail guide answer. Looking up at me with her angelic little face she asked, "Why are you so old?" Well, trail guide training had not prepared me for that one, but her sincerity and innocence with the question was endearing and made me laugh. As much as my day is often enriched by being with these little ones, there are times though, when the reality that some of them have never been on a trail in the woods before is disturbing. The fact that my effort as a volunteer trail guide can, for a short time, introduce these kinds of kids to the wonders of a world they have never seen is indeed a highlight to me.

Whether working in animal care, trail guiding, dragging brush at Erwin Park, buffalo stomping new seed at the Raptor Center, or just walking through a prairie of wildflowers and prairie grasses with other master naturalists, the relationships that are built and the camaraderie that exists are among the greatest side effects of volunteering. I cannot explain how much I enjoy the banter and good-natured kidding back and forth that takes place. True friendships develop, and I find that to be of great value to my health and well-being.

Now I am already moving on to the next milestone. Whether I get there or not is anyone's guess and not really so important. The fun and excitement I experience along the way, the things I learn that will amaze me, and the friends I will make are the true rewards of the effort. May your journey be as amazing and rewarding.

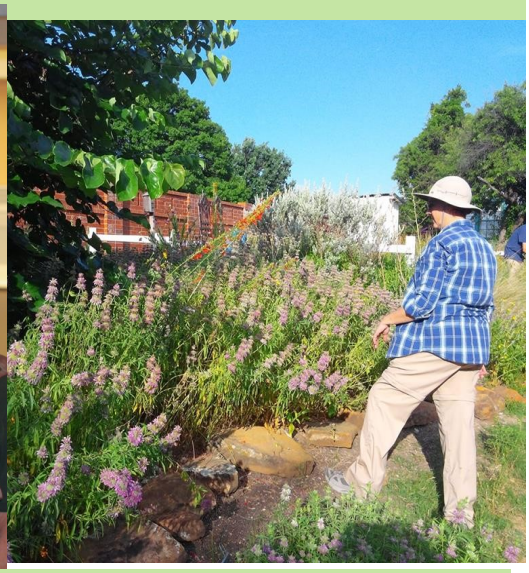
Since our incorporation as a nonprofit on January 23, 2018, it seems like we've been going non-stop. In early April, we had the pleasure to attend the Blackland Prairie Texas Master Naturalist monthly chapter meeting and introduce the ***American Prairie Corridor*** *(APCorr), our newly-formed 501(c)3 nonprofit corporation focused on restoring prairie habitat in a 3-mile-wide corridor stretching across the Great Plains from the Mexican border in Texas to the Canadian border in North Dakota. Charles Neel, President of APCorr, spoke about our outreach efforts to the communities within the corridor in Texas, Oklahoma, Kansas, Nebraska, South Dakota, and North Dakota. He also introduced the Vice President, Tina Rust, and Secretary, Greg Tonian.*

Later that month, we were invited to be part of the EarthX event held at Fair Park in Dallas on April 19-22, 2018. During this 3-day event, over 100,000 people attended the largest annual environmental conference in the world. We set up our booth in the Centennial building and talked to lots of families, environmental groups, and school groups about prairie restoration and APCorr. We had our mailing list ready for people to sign up and promoted the event on our Facebook and Twitter pages. We even got 6 new members! During the event, we were also given the opportunity to sponsor and promote one of the EarthX films called *Bird of Prey about conservation of the endangered Philippine Eagle. Charles talked to the audience about the Corridor before the showing of the film.*

On June 16, 2018, we headed out to see the local prairies around Dallas, joining the Native Prairie Association of Texas (NPAT) on their annual prairie tour of three different prairies - the Matthew Cartwright-Roberts Prairie near Terrell, the Ebel Grasslands Ranch near Sulphur Bluff, and the Daphne Prairie near Mt. Vernon. About a week later we headed out to the prairie in our own proposed Corridor, approximately 200 miles west of Dallas, in Baird, Texas. We drove north along US 283 to Albany and south to Coleman, documenting what we saw in the corridor with video and photos. As you might expect, this area of Texas is mostly miles and miles of ranchland in mesquite savannah; but there were some surprises, like the beautiful community garden we discovered in Coleman, and the one-of-a-kind event called the Fort Griffin Fandangle in Albany, the oldest outdoor musical in the state of Texas.
While we were there, we attended the Big Country Texas Master Naturalist chapter meeting in Abilene on June 21, 2018, and had the opportunity to talk with the members about our project. Most of the members in that chapter are local ranchers and farmers who are interested in innovative and holistic ways to take care of their land. We listened to a presentation on dung beetles (did you know there are four different types?) and had the opportunity to talk with a visiting USDA soil conservationist about our project and the potential for partnering in the future.

And it doesn't stop there. On Friday, June 29, 2018, Tina Rust, Vice President of APCorr, attended a Monarch "Train the Trainer" workshop in Austin at the Zilker Botanical Gardens. And that evening, American Prairie Corridor had the opportunity to cohost "Bugs in a Blanket" at the Lake Lewisville Environmental Learning Area (LLELA). We learned that bugs really love black lights! We saw cicadas, beetles, and lots of dragonflies. Greg did a wonderful job of leading the troop of kids through the woods and into the dark where we encountered lots of bugs to the kids' delight.

Next up we will be attending the July meeting of the newly-formed White Rock Native Plant Society of Texas (NPSOT) chapter to continue to get the word out, then hoping to attend the Texas Master Naturalist annual meeting in October and the Texas Society of Ecological Restoration meeting in November. We're grateful that so many people have let us know that they love the prairie as much as we do and want to see it preserved and protected. Our journey has just begun and we thoroughly enjoy sharing it with you. Please follow us on Facebook, Twitter, or Instagram, or even better, sign up for our mailing list (you'll see the link on our Facebook page) to receive updates about our latest adventures. We look forward to seeing you all out on the prairie. **Article written and submitted by Tina Rust, BP Chapter TMN Class of 2018 and VP of "APCORR"**



250 hour pins earners and one 4000 hour honoree at May Chapter Meeting; Heritage Farmstead Native plants!

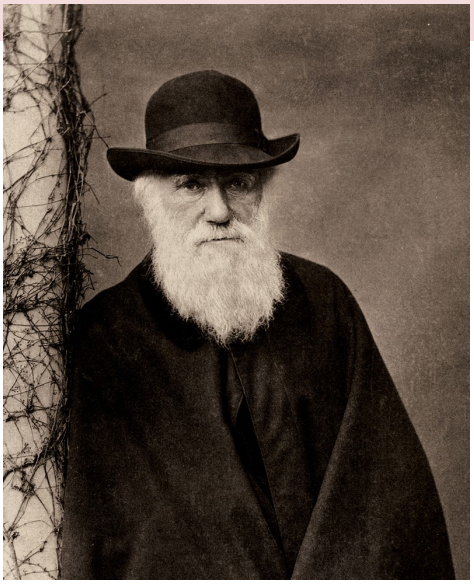
Book Review: The Origin, by Irving Stone by Greg Tonian

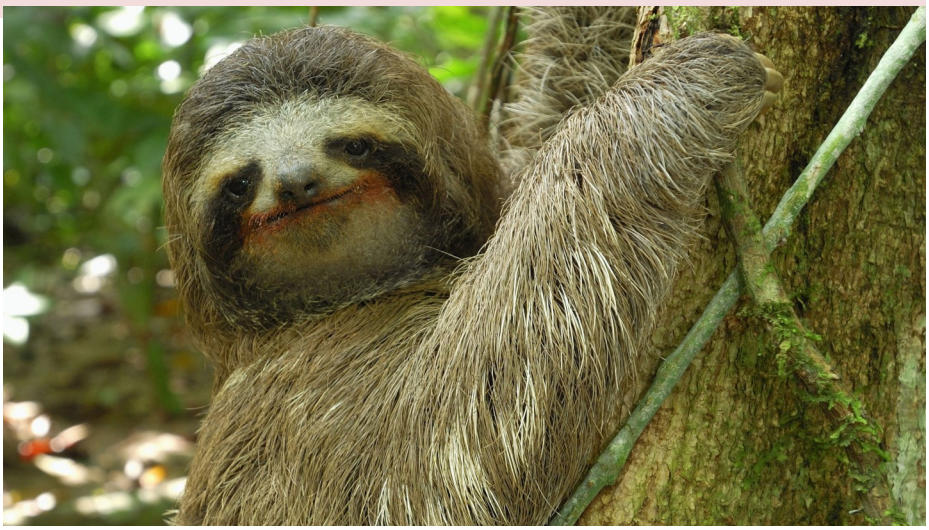
I recently re-read a book that I read so long ago that I had forgotten about it. I have read other books by Irving Stone, an author that writes well-researched, historical fiction about the lives of famous people, several that have been critically acclaimed and that I enjoyed, including a book called Lust for Life, about Vincent Van Gogh and Agony and the Ecstasy about Michelangelo. The Origin is about Charles Darwin. I recommend it to my fellow naturalists as it puts in perspective why Charles Darwin should be remembered more favorably as a role model for his unending curiosity and less so as a polarizing revolutionary who wrote The Origin of Species and became the Father of the Theory of Evolution. The book is a thorough accounting of Charles Darwin's life from around the time he graduated from Cambridge's Christ College with a BA in Theology and was on the cusp of becoming a vicar. It describes his early influencers and the many mentors which would become his peers throughout his life and nurture his love of geology, botany, paleontology, zoology and the natural sciences in general. It of course explains how he ended up on the voyage of the Beagle, a 5-year circumnavigation of the world and gives interesting accounts of the many adventures he undertook. It was his meticulous note taking and voracious collecting of flora and fauna, rocks and fossils that became the basis for a lifelong pursuit of knowledge and understanding of natural history. The reader is able to understand how his social status played a role in his ability to devote his life to natural history. One learns a great deal about his family life and his years of scientific research and writing which produced numerous volumes that were well-received around the world in his lifetime. His mother and wife were Wedgewoods (famed porcelain company proprietors) and his father and grand father were well regarded scientist-physicians in their own right. In fact, his father, who had already had to accept that Charles was not going to become a physician, did not approve of his taking the position of naturalist on the Beagle Voyage, which originally was only to last 2 years. Charles' Uncle convinced his Dad to reconsider because it was indeed a great honor, much to the relief of Charles.

The key take away for me from reading the book was the passion that Charles Darwin had for natural history and his keen skills for observation, collection, documentation and research, his ability to nurture a supportive and diverse international peer group and his tireless and prodigious output of written material that he published to help enlighten the scientific community and laymen alike.

Charles' wife Emma was initially against his spending time on the dilemma of the origin of species for religious reasons, but her great love and admiration for Charles allowed her accept the inevitable. Darwin's epic voyage revealed far too much evidence of change over a vast period of time that he had no choice but to seek knowledge and understanding of what brought about the astonishing diversity in the natural world and the discrepancy in the fossil record between living creatures and fossilized ones. In fact, he was planning to release his writings on the subject posthumously as he knew they would be considered blasphemous. His circle of scientist friends convinced him otherwise.

One concept that he felt strongly about, well before genetics was as well understood as it is today, he called "pangenesis" in which he theorized that each cell of the animal or plant is able to carry on individual traits to the next generation. His publishing of the Origin Species was indeed controversial, but it sold very well from the outset and was widely embraced relatively quickly. Alfred Wallace, a younger scientist who became Darwin's friend and peer had developed similar ideas about the same time, but Wallace was never jealous and was willing to give Darwin credit as the pioneer in the field. He can be seen as being an impetus for Charles Darwin's decision to publish.





One anecdote in the book has Darwin pondering why caterpillars are so brightly colored when they would be so conspicuous and at risk. Wallace replied, “they want to be seen”, reminding Darwin that the would-be predators would easily recognize them as unpalatable as many brightly-colored caterpillars are toxic. Another anecdotal observation was made by Darwin when studying orchids had him hypothesizing that a particular Asian orchid with an elongated trumpet-like flower was surely pollinated by a moth with a very long proboscis. A few years later, a botanist from afar verified the existence of such a moth.

Perhaps some day you will have a chance to read Charles Darwin’s Origin of Species and even his journal of the Beagle Voyage, both in their entirety, but if you want to read a nice overview of the life and adventures of this very influential man and worthy role model for his modern-day naturalist peers, check out The Origin.

Postscript: After I read The Origin I mentioned my deed to a couple friends and I was a bit taken back by the somewhat negative bias in their responses. Both comments were more focused on social issues, one that Charles was elitist (he was privileged, but an abolitionist and empathetic to social ills) and the other was more focused on the concept of “Social Darwinism” and the harsh implications of applying the principles of “survival of the fittest” simplistically and unfairly to the ills of society. As naturalists and scientists, we must not forget that our love for the natural world and science and just the simple love of observation without bias and political agenda is difficult to convey to everyone. It is difficult to debate any side of an argument without having an open mind and spending quality time researching the facts.

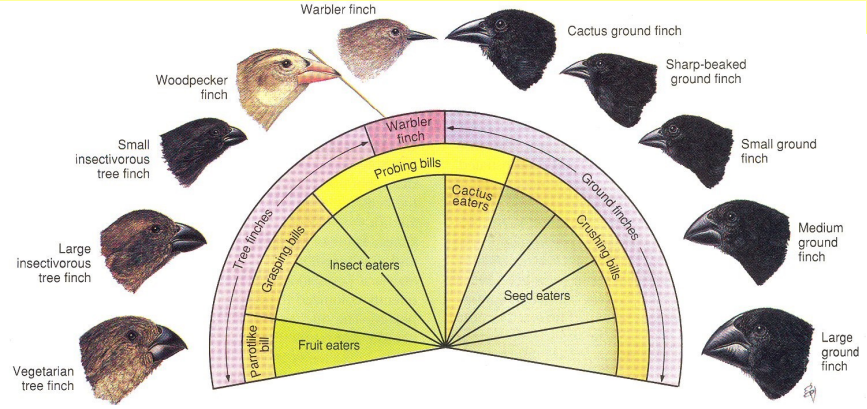
I thought, if nothing else, it would be worth at least remembering to remind the sceptics of a very good example of “evolution in action” that most people might understand. That being the rapid development of antibiotic resistant strains of bacteria and other pathogens. Another interesting example of evolution, in which over time species develop a mutualistic relationship with other species struck me as amazing and one surely Darwin would have loved. I recently learned that 3-toed sloths have developed a relationship with certain moths and green algae. Moths live in the sloth’s fur and contribute to its growth and their droppings and bodies in death encourage the growth of the algae in the sloth fur. This allows the sloth to be camouflaged, protecting it from predators and it even provides a nutritious supplemental source of food. The sloths periodically descend the trees they live in, risking predation and expending a great deal of energy, in order to allow the moths to lay their eggs in the sloth’s feces which they deposit on the ground at the base of the tree. When the larvae hatch, the moths take refuge in the fur and algae of the sloth and the partnership is perpetuated to the benefit of sloth, algae and moth.

Evolution involves change and adaptation over time with marvelous and fascinating results. Nature is a living laboratory for those who like to explore, observe and ponder the amazing biosphere that is planet earth. I for one am grateful for great scientific minds, including Darwin, that help me better understand God’s creation and man’s place in it.

Two quotes from “Meditations of Ralph Waldo Emerson: Into the Green Future” compiled and edited by Chris Highland

“Delight itself, however, is a weak term to express the feelings of a Naturalist” – Charles Darwin in “Voyage of the Beagle”

“The universe is a more amazing puzzle than ever, as you glance along this endless series of animated forms-the hazy butterflies, the carved shells, the birds, fishes, snakes and upheaving principle of life everywhere incipient, in the very rock aping organized forms. Not a form so beautiful but is an expression of some property in man the observer-an occult relationship between the very scorpions and man. I feel the centipede in me- caiman, carp, eagle and fox. I am moved by strange sympathies; I say continually, “I will be a naturalist.” – Ralph Waldo Emerson



Out and about : Chapter Volunteers at work

David Powell talks Trees at Arbor Hills Nature Preserve on June 9, 2018

Paul Hodges and his hiking partner, John Studer explained how “less is more” when backpacking at June 3rd Saturday talk at The Heard! (did not cover how much toilet paper to pack or leave at home)

Texas Master Naturalist Trip to the Davis Mountains
by Donna Cole

On May 17th, I greeted twenty-four other Texas Master Naturalists and friends and started a weekend of bird-watching, hiking, photography, star-gazing and general fellowship. We came from various Texas ecosystems -- Blackland Prairie, Hill Country, Gulf Coast Plains, Cross Timbers, Rolling Plains. One even came all the way from Georgia. No matter our backgrounds, we all found something to love about the place I love: the Davis Mountains of Texas.

We started the weekend with a meeting on top of Skyline Drive in Davis Mountains State Park where we admired the view and saw our first wildlife. Admittedly, they were non-native/invasive aoudad sheep but they were exciting to watch. On Friday, we caravanned to the Chihuahuan Desert Nature Center, aka Chihuahuan Desert Research Institute where some stayed topside, enjoying the botanical gardens and bird blind, while others were led on hikes by local TMN volunteers. I enjoyed our trip to the natural spring at the bottom of Modesta Canyon and others from our chapter took the geology hike to Clayton's Overlook. I think everyone was pleased with their visit. After a box lunch at the pavilion we had some free time until later that evening when we drove up the mountains to the McDonald Observatory. The Star Party at the Observatory is always a popular activity. After learning a bit about the night sky we all took turns looking through big, I mean BIG, telescopes at various celestial objects.

Our Saturday plans were altered by the wildfire that had just been contained so we did not get to visit the main part of The Nature Conservancy's Davis Mountains Preserve. However, we still had the opportunity to hike their Madera Canyon trail and picnic at the L. E. Woods roadside park afterwards. Some of us spent Saturday afternoon in the town of Fort Davis while others explored Marfa and Alpine. I believe a few even did a little window shopping at Prada Marfa near Valentine. The Marfa Mystery Lights were a popular destination and we were all duly mystified by the things we saw. (I swear, it had nothing to do with our prior visit to the bar at Planet Marfa…)

Sunday was a relaxing day of mostly free time. Those of us that visited the Museum of the Big Bend on the Sul Ross University campus in Alpine learned a little more about the area. This tiny museum does a fantastic job of interpreting the history of the Big Bend from prehistory all the way to the modern day. Most of us met for a picnic at the Point of Rocks on Sunday afternoon, and those that had not already driven the Scenic Loop around the mountains completed the drive that evening.

Throughout the weekend we saw amazing wildlife. Numerous mammals, beautiful birds, reptiles, amphibians, insects, and plants kept us busy singing the song of our people: "What's that?" This was my third TMN trip to the Davis Mountains and my fourth "TMN Campout", and each time I leave thinking how lucky I am to belong to such an amazing group of dedicated, nature-loving volunteers. Be on the lookout for my next trip and join us for some fun!

Review and Commentary by Sally Evans:

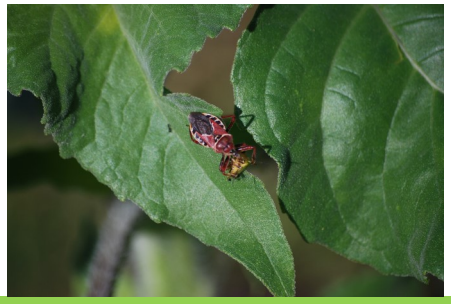
A friend sent me an article through the computer entitled The Silence of the Bugs. It was from the "Opinion" section of the May 26th New York Times, and it was a bit frightening for a Master Naturalist to read. The author, Mr. Curt Stager, a professor of natural sciences at Paul Smith's College, described a study published in the fall of 2017 from Germany. For thirty years data had been collected measuring the biomass of flying insects at 63 different locations. The scientists and amateur naturalists who were collecting the information "documented a 76 per cent decline in the total seasonal biomass of flying insects" over that time period. The percentages in midsummer were even higher when the insects should have been most numerous.

Another story from The Telegraph "noted that automobile windscreens in Great Britain are no longer heavily caked with splattered insects." The author did a quick survey of his own in July in Saranac Lake, NY and found very little bug debris on the front of the vehicles he studied. This was unlike his memories of summer driving in the 70"s through northern New York state when his vehicle would be covered with insect body parts and 'bug juices'.

Mr. Stager is concerned that we may be facing "a global insect Armageddon" and we don't know it! It is not a topic that attracts much attention for scientists who must generate grants for their research or who must 'publish or perish'. There are few accolades for those who would tell us we are losing our insects and that it is not a good indicator for our environment.

The cause for the biomass decline is not known. It could be climate change. It could be more vehicles on the roads everywhere. It could be agricultural chemicals, habitat loss, non-native vegetation. Whatever the reason or reasons, research on the topic is needed badly. Insects are the pollinators for our plants and the food for our animals. Stager quoted the biologist Edward O. Wilson who warned,"If all mankind were to disappear, the world would regenerate back to the rich state of equilibrium that existed ten thousand years ago. If insects were to vanish, the environment would collapse into chaos."

The author went on to indicate we need more studies, more data, and more researchers, now! The trained scientists are so very valuable but the amateur naturalists are also needed. They are the ones who are in the field observing, recording, and asking important questions. He mentioned organizations such as iNaturalist and Audubon. As Master Naturalists we are a part of that research 'team'. We learn, observe, teach, collect information and submit our observations to the data collectors. As Citizen Scientists we are a part of the team that must collect the information and analyze it.



Ah, the sounds of cicadas assailing my ears;

The whine of a mosquito as it comes near;

The buzz of flies in a barnyard lot;

These are the sounds when the sun is hot.

The cry of pain from a wasp's bite;

Or swarming bees that cause a fright;

These are the insects we don't appreciate,

And we all cheer when they hibernate.

Oh wouldn't it be so very pleasant

If all the insects were iridescent

Like the beautiful wings of a dragonfly

As it quickly, SILENTLY flies by.

Perhaps they should all be small like the ladybug,

Or light up the night like the lightning bug.

But alas, we must stay in harmony

With the insect's world of diversity.

Long live the white flies that destroy our plants;

Long live the butterflies, beetles and ants;

'Live and let live' must be our motto

As we slather on repellent from the bright green bottle.

Poem and article review by Sally Evans

Hymenoptera: Ants, Bees, Wasps and Kin by Greg Tonian

The Insect Order that I have chosen to feature in our Summer Newsletter, Hymenoptera, is apropos, as it is during the warmer months of the year that we often encounter members of this group, perhaps even they encounter us, much to our annoyance or, hopefully delight if they are simply observed pollinating our flowers. These insects are named after the Greek words, humen-membrane and ptera-wing. Most adult forms, with the exception of ants, in their normal morphology, possess two pairs of transparent wings. Hamules or hooks on the hind wings allow the wings to lock in flight so that they act as one large wing.

This group of insects undergoes complete metamorphosis (Egg-Larva-Pupa-Adult). Larvae are often carnivorous in the case of wasps, pollen eaters in the case of bees or may have other interesting food strategies depending on the species. Adult wasps and bees feed primarily on nectar. Ant species have a variety of food strategies, often bringing them in conflict with human habitations and activities.

Painful stings and bites may be administered by members of this group, another summertime hazard that this group provides. The venom of wasps and bees is administered by a modified ovipositor or stinger. The venom is 95% aqueous protein and humans can develop a potentially fatal allergic reaction to their second exposure to these toxins. Ants, such as red imported fire ants (RIFA) and others can introduce alkaloid hemolytic cytotoxins by stinging. Fortunately, we do not have the so-called “bullet ant” in our country. This ant has a sting which inflicts pain reportedly reminiscent of a bullet strike. The Satere-Mawe of the Amazon jungle use the ants in their passage to manhood rites. Yes, you can google a u-tube a video of a naturalist thrill seeker of the truth allowing himself to be stung by one. Apparently when the pain subsides it releases endorphins. I will stick to the runner’s high approach to releasing endorphins thank you!

There are many other insect orders that have members which mimic wasps, bees and ants. These include flies, moths and beetles. Perhaps this allows them a bit of protection from predation as predators may choose to avoid them. Distinguishing between mimics and the real thing while conducting a nature walk may allow for some interesting teaching moments and open the eyes of wonder amongst your guests.

There is not enough room in the newsletter to fully cover this group or even the major sub groups: Bees, Wasps and Ants. Ants are considered close relatives of the wasps. One of the highly evolved characteristics of ants is there social behavior which allows 1000’s of ants to act together as if they were one organism. One species, the Argentine Ant, has developed mega colonies in California and one that extends from Italy to Spain. Some species cause major economic havoc such as the red imported fire ant and the tawny crazy ants, both a problem in Texas. Native ants are threatened by these invasive species as is often the case with other animals and plants. In any case, ants minute and large will certainly be seen both indoors and outdoors year-round, both providing food for other creatures and employing a variety of crazy social strategies which often put them on a collision course with man. There are approximately 250 species of ants in Texas. Key ant types are: Carpenter Ants, bite but don’t sting, can be quite large and nest in wood and rotting trees; Leaf-cutting ants; Black Crazy ants, do not bite or sting; Red harvester ants, seed gatherers; Harvester ants, can bite and sting; Pyramid ants, form small, 2-4 inch diameter mounds; RIFA’s; Raspberry or Tawny crazy ants, don’t sting, but bite and can inundate structures; Pharaoh or Sugar ants, like sweet and greasy foods (and my cereal), don’t usually bite or sting.

HYMENOPTERA, Continued…….

I put the book, “Bees in the Backyard” on my last Christmas list and highly recommend it to my fellow naturalists. Bees stand out as the “good guys” in the order and amongst all insects because of their importance as pollinators. The fact that they sting is a cause for conflict for those that do not understand the economic and environmental importance of native bees and the imported honeybee as well. As is found in many species, there are often specific bees that pollinate specific flowers. They possess a variety of specialized features to gather pollen and may employ certain techniques to shake the flower and help dislodge the pollen, a technique which actually allows for pollination to occur. The diversity of bees is amazing and there several hundred species in Texas alone and 4000 or so in North America. They range in size from tiny genus Perdita, small, pesky and colorful sweat bees to fuzzy, cotton ball-sized bumblebees. The key families of bees to look for and learn more about are:

Colletidae-plasterer bees; Andrenidae-mining bees; Halictidae-sweat bees; Megachilidae-resin bees, mason bees and Apidae, which includes the genus Bombus, bumble bees; Xylocopa, carpenter bees; Apis mellifera, the European honeybee; Anthophora, digger bees.

Wasps differ from bees in that they are generally smooth and not hairy, as they are not pollen gatherers. They can be more colorful and garishly-patterned and more bullet-shaped and sometimes have skinny, constricted “waists” in which the link between the thorax and abdomen is quite slender.

As mentioned earlier, they have larvae that often are provided a form of prey as a food source. The prey can be any of a variety of insects and spiders, species specific to the given wasp, that has been placed in a sting-induced coma by the female wasp. This fascinating, yet macabre practice is one that if shared with budding and inquisitive naturalists might elicit shock and fascination at the same time! The poster child for this practice, is the so-called “Tarantula Hawk”, a very large, striking wasp with a blue body and yellowish wings that moves with distinct twitches when it’s on the prowl. This predacious wasp will sting the Tarantula, avoiding it’s pointed chelicerae like a matador. The venom acts quickly and the Tarantula is paralyzed allowing the wasp to drag it to a burrow where it lays an egg on the helpless victim which then becomes a food source as the newly hatched larva feeds on the spider from the inside out. I am shuddering as I write this!

Key types of wasps to look for or perhaps appreciate from a distance are:

Solitary Wasps: A diverse predatory group that includes the “Spider Wasp” family Pompilidae, the Sphecidae family which includes the “Mud daubers and the over-sized “Cicada killer”, the Typhidae which parasitize beetle larvae; Evanidae or “Ensign wasps” which prey on cockroaches; Tiny parasitic Braconidae; the ever present and perhaps most likely to sting you in and around the home, Vespidae or “Paper wasps” and the so-called Velvet Ants (Mutillidae), colorful, wingless females that pack what may be the most painful sting of the group in our region (they squeak when handled or disturbed, but be careful!)

Finally, the order also includes a few other relatives which include the several wasp-like groups: Sawflies, Horntails and Ichneumonid wasps (distinctive elongated ovipositors; caterpillar parasites).

I guess you could say I had a “bee in my bonnet” when I wrote this overview of the fascinating insect order, Hymenoptera which means to say I have been rather obsessed and could not stop thinking about what to teach you devout readers in this issue. I also am reminded of the expression, “busy as a bee”, which is quite accurate when one reflects upon the frenetic activities of the numerous bees, wasps and ants we will likely encounter during our summer adventures in nature!

Left : Great Golden Digger Wasp, Sphex ichneumoneus (GT) and Right: Tarantula Hawk Wasp, Pepsis thisbe

Photo by DJ Craig

I never really gave Darwin's evolution theory much thought other than its general importance, love of the movie "Inherit the Wind" and the discussions we had in 8th – 9th grade. I remember Mr. Garr saying science without religion is lame and religion without science is blind.

So, I went looking due to the request for this newsletter. Here is what I found: Butterflies! I admit to the fact that I am drawing this information from a Scientific American article entitled "Evolution: How Did Insect Metamorphosis Evolve?". It was written by Ferris Jabr, August 10, 20102.

Renous learned in the early 1800's that life is not easy for a naturalist. This German scientist was arrested and deemed a heretic because he said he could turn caterpillars into butterflies. He told Charles Darwin about this and he in turn wrote about it in *The Voyage of the Beagle.*

Metamorphosis remains somewhat mysterious, but scientists have given their best shot as to how it happens and why. Metamorphosis—the process through which some animals abruptly transform their bodies after birth—has been acknowledged since at least the time of ancient Egypt knew that worms and grubs develop into adult insects.

From what we can tell through research, the first insects on this planet hatched from eggs and were miniature adults. Between 280 million and 300 million years ago, however, some insects began to mature and hatched in forms that did not look or behaved like their adult versions. This shift proved remarkably beneficial: young and old insects were no longer competing for the same resources. Metamorphosis was so successful that, today, as many as 65 percent of all animal species on the planet are metamorphosing insects.

According to Jabr, fossils dating to 280 million years ago record the emergence of a different developmental process. Around this time, some insects began to hatch from their eggs not as mini adults, but as wormlike critters with plump bodies and many tiny legs. In Illinois, for example, paleontologists unearthed a young insect that looks like a cross between a caterpillar and a cricket, with long hairs coating its body. It lived in a tropical environment and likely rummaged through leaf litter for food.

However metamorphosis evolved, the enormous numbers of metamorphosing insects on the planet speak for its success as a reproductive strategy. The primary advantage of complete metamorphosis is eliminating competition between the young and old. Larval insects and adult insects occupy very different ecological niches. (see photo of cicada pupa metamorphosing below)

Whereas caterpillars are busy gorging themselves on leaves, completely disinterested in reproduction, butterflies are flitting from flower to flower in search of nectar and mates. Because larvae and adults do not compete with one another for space or resources, more of each can coexist relative to species in which the young and old live in the same places and eat the same things. Ultimately, the impetus for many of life's astounding transformations also explains insect metamorphosis: survival. By Deborah Canterbury

I still welcome chapter members to send me their "Darwinian" thoughts. What have you observed? What questions have been raised in your mind as you have encountered plants and creatures in your wanderings. What hypotheses are perplexing you? - Please share them! Your editor, Greg Tonian

Longtime wish list project completed this spring!
Rainwater Harvest Project for Heard Frog Pond

By Sherry Fabricant

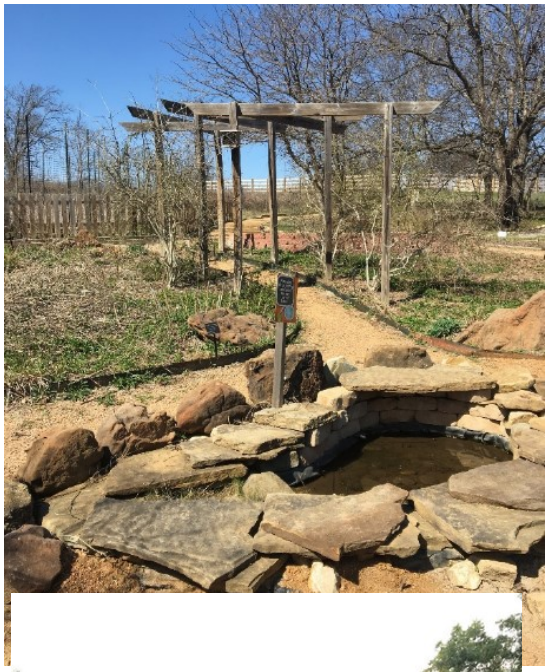
Naturalists Melanie Schuchart and Sherry Fabricant recently mentored a project in conjunction with Plano Senior High School (PSHS) AP Environmental Science students to add a rain catchment system to the Heard Museum's Butterfly Garden. PSHS Instructor, Mark Yoder, assigned the community project to his class with the main objective of participants 'Making a Difference' in their community's environment or sustainability practices. Their driving question was: How can we comprehend and apply the facts and issues surrounding humanity's interaction and impact on the environment, including those dealing with consumption habits, natural resource and ecosystem management, water use and pollution, food production, waste production and management, energy resources and production, air pollution, and climate change in order to design a project in the local community that measurably and permanently improves the state of the local environment or the sustainability practices of members of the local community?

Students, Caroline London, Grant Williams, Sam Fabricant, Mckenzie Bishop, and Neeku Hadadnejad teamed up to solve the problem voiced by long time Heard butterfly garden volunteer, Melanie Schuchart: "How can we get unchlorinated water to the butterfly/frog pond with less effort?" Previously, volunteers manually filled the pond with 5-gallon water buckets from a faraway hose that required a waiting period for the chemicals to evaporate. The students met with Melanie and worked towards the objective of finding an efficient way to have rain water go directly to the butterfly pond without delay and constant maintenance while providing an overall healthier environment for the butterflies and other organisms that live near the pond.

During the research and design phase they reached out to the Texas A&M AgriLife's office and consulted with Dr. Fouad Jaber, hydrology specialist for feedback on appropriate methods and rainwater calculations to ensure a successful project. They designed a 60 sq.ft. roof, attached it to the existing trellis, added a gutter and rain barrel. It was completed early May 2018 and has since filled up three times with the rains in the past month since it was installed. They collectively put in over 40+ hours and all received 100's for their effort!

Mark Yoder, their PSHS teacher, mentioned this was the introductory year for the community project and the TMN/Heard group has set the benchmark for upcoming projects. If there are any naturalist projects that you feel would qualify for consideration based on the projects driving question, Mark would love to hear from you. You may contact him at mark.yoder@pisd.edu.

Link to this project may be found at https://www.youtube.com/watch?v=2_YTvM5Jw2E&feature=youtu.be
Link to other PSHS AP Environmental Sciences Projects may be found at: https://www.pisd.edu/Page/17420



2018 INATURALIST CITY CHALLENGE

By Greg Tonian

The weekend of April 27-30, DFW competed against 69 other cities for bragging rights for the most observations, species identified and most citizen naturalist observers. In 4 days, over 34,000 observations were posted in DFW and over 2500 species were identified. Top DFW area observer was Tracy Fandre from Garland who posted 1096 observations and our very own DFW Urban Wildlife Biologist from TPW, Sam Kieschnick, identified 540 species of plants and animals. The most common species observed in DFW by postings were the evening primrose, Northern Cardinal, Fox Squirrel, 7-spotted Lady "Bug" (Beetle!) and Poison Ivy.

The Top 3 cities in order of observations were San Francisco Bay Area with 41,737, DFW with 34,218 and San Diego County with 33,448.

The Top 3 cities for species identified were SF Bay Area, 3211; Houston, 3088 and San Diego County, 2946.

The Top 3 cities with most observers posting were SF Bay with 1532, San Diego Co. with 1211 and Boston with 992.

The Farm Bill and the Importance of the American Prairie

Article from Star Tribune

If you love America's prairies, you should take a look at what's happening in Congress right now.
Every five years, Congress takes up the legislation known as the farm bill to shape most of our country's food and agriculture policies, from crop insurance and subsidies to food assistance programs. These issues tend to dominate the debate, but conservation measures are also critical components of the bill.
Unfortunately, the last version to come before the House — the Agriculture and Nutrition Act of 2018 (H.R. 2) — would have significantly undermined measures aimed at helping farmers and ranchers conserve nature across America. Fortunately, on May 22, the House rejected the bill and plans to take it up again this month. This gives voters an opportunity to urge their representatives to strengthen the bill's conservation measures.
In particular, Congress needs to incorporate a bipartisan measure introduced in October 2017 by U.S. Sen. Amy Klobuchar, D-Minn., and U.S. Rep. Tim Walz, D-Minn., along with U.S. Sen. John Thune, R-S.D., and U.S. Rep. Kristi Noem, R-S.D. The objective of their bill, the American Prairie Conservation Act (S. 1913 and H.R. 3939), is to conserve native grasslands across the U.S.

There are four primary reasons it is important to protect grasslands nationwide:

1) America's grasslands stretching from Montana to Texas are home to myriad wildlife species, from swift foxes to songbirds. Many birders, anglers and other nature lovers, find rest and recreation in this quintessentially American landscape.

2) Grasslands help maintain clean waterways. When native grasses are rooted in the ground, they hold moisture and soil in place. When that grass is removed, soil dries out and erodes much more easily, leading sediment, phosphorus and nitrogen to run off into rivers, lakes and, ultimately, the Gulf of Mexico, where it pollutes drinking water and threatens fishing and tourism-based economies. In fact, the World Wildlife Fund estimates that conserving healthy grasslands from conversion to cropland could save 1.7 trillion gallons of water.

3) Grasslands are some of the most potent forces in the fight against climate change. Grasslands pull massive amounts of carbon out of the atmosphere, where it traps heat, and store it in the ground. Globally, soils store nearly twice as much carbon as is stored in the atmosphere.
According to a 2009 grassland carbon study by the Food and Agriculture Organization of the United Nations (FAO), 343 billion tons of carbon are retained in the ground, nearly 50 percent more than is stored in forests worldwide. For the entire planet's health, we must keep the carbon there.

4) Grasslands are critical for ranching. Cattle can do something that most other animals cannot do: They eat grass that's inedible to us and turn it into edible protein. When land is good for growing grass alone, cattle ranching can be the best means of keeping that grass healthy. Not only is it environmentally beneficial, but it is also economically viable.

We know the American Prairie Conservation Act will reduce the plowing up of prairie because it includes the successful "Sod Saver" program established in the 2013 farm bill in six states, including Minnesota. In a nutshell, "Sod Saver" disincentives the plow-up of native grasslands that have marginal productive value. Congress should also seize the opportunity to restore full funding for the conservation programs and maintain support for the Conservation Stewardship Program, which gives farmers and ranchers the incentive to implement comprehensive conservation on working lands.

Across the Great Plains, more and more grasslands are being plowed up to grow crops. And with most of the best land already in use, what's left to plow is often marginal at best. If this rate of plow-up continues, scientists have warned that we are in danger of causing another Dust Bowl, which crippled farmers more than 80 years ago.

It is hard to blame anyone for plowing up sod when policies incentivize such activity. However, adjusting these policies can save both grasslands and taxpayer subsidies, estimated by the Congressional Budget Office to exceed $50 million over the next 10 years.

The failure of the farm bill gives Congress one more chance to get its conservation measures right. By following Klobuchar's and Walz's lead and including a national "Sod Saver" program in the farm bill, Congress can take the rare step of passing bipartisan legislation that benefits the environment, taxpayers and agricultural communities in equal measure.

As Minnesotans, we are fortunate to have leaders like Klobuchar and Walz who care about grassland conservation. If you, too, care about the prairies, send them your thanks — and urge your other representatives in Congress to make "Sod Saver" a national program.

Cheryl Olseth, of Minneapolis, is director of the Olseth Family Foundation, a member of the World Wildlife Fund's Northern Great Plains Advisory Committee and an advisory board member for Climate Generation: A Will Steger Legacy.

Photo: "Prairie parsley" at the Heard

13.8 Billion Years Covered in 60 minutes! -A Commentary on June Chapter Meeting Presentation

Those who missed the June Chapter meeting missed a wonderful presentation by Ernie Stokely about the creation of the cosmos. A heady topic that he made approachable to those of us that find astrophysics overwhelming. Two things stood out: 1) if the time-line of the cosmos is a 15 foot rope, then man's proportion is a microfiber at the tail end of it and 2) those dinosaurs that were destined for extinction were here from 240 MYA to 66 MYA. By my calculations those humble creatures roamed the earth for 74 Million years! What is your bet that our super intelligent species will roam this planet for a Million Years? There is not enough room in the newsletter to recap the gloom and doom that is printed in our newspaper, but in the last 2 weeks a number of news spots in the Dallas Morning News spoke to the relevance of Ernie's commentary and concern about just how much man has affected his earthly home in virtually a nanosecond of earth history. On Thursday, June 28th an article noted that 39 Million acres of tropical rainforest were lost last year. In the Thursday July 5th DMN, 3 articles appeared. One recapped numerous heat records for the past WEEK. Another related how ongoing bleaching events are desecrating the Great Barrier Reef. It is truly amazing that man's collective activities and emissions can destroy something so far away from most population centers and dramatically illustrates how the incremental heat rise in our ocean has devastating and likely permanent effects on corals and life forms in this vast ecosystem. A third article discussed efforts to somehow use in vitro fertilization techniques to save the Northern White Rhinoceros from extinction. The last known male of the species died in March at age 45 and the 2 remaining females are considered sterile. The 2 rhinos live under armed guard in a 700 acre enclave in Kenya. They are looking at using frozen northern white rhino sperm to either fertilize eggs culled from the females to see if they are viable or use southern rhino eggs and produce a hybrid carried to term by a surrogate southern rhino female. Man is certainly willing and able to do what it takes to heal Mother Earth and Ernie had some great suggestions. It is up to all of us to continue to educate others and open their eyes and hearts to the world of nature and how we must be stewards of our environment now and for future generations.– Greg Tonian

A northern white female rhinoceros, named Najin, at Ol Pejeta Conservancy in Kenya in 2015. (Tony Karumba/AFP/Getty Images)

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email newsletter@bptmn.org.

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http://bptmn.org/_BOARD_FTP/newsletter/

Other BPTMN communications are at:

Smugmug - http://bptmn.smugmug.com/
Facebook - https://www.facebook.com/bptmn
forum.bptmn.org

The Mission of the Texas Master Naturalist program is to develop a corps of well-informed volunteers to provide education, outreach and service dedicated to the beneficial management of natural resources and natural areas within their communities for the State of Texas.

The Texas Master Naturalist program is a partnership between the Texas AgriLife Extension Service, Texas Parks & Wildlife and other local partners.

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Upcoming BPTMN Meetings
2nd Tuesday, 7 p.m.,
Heard Museum Science Center

July 10: ***"Sex in the Garden" – Janet Smith***
Become a voyeur and see how flowers lure insects to help with their reproduction and how they reward the pollinators. You will never look at the garden in the same old way again. Janet is a recovering plantaholic who considers the Master Naturalist and Master Gardener training as her 12-step program.

Aug 14: ***"Intro to Dragonflies and Damselflies" -Omar Bocanegra*** Omar coordinates the Branch of Environmental Review, Classification, and Recovery for the U.S. Fish and Wildlife Service's Arlington, TX Field Office. He has worked for over 18 years on endangered species issues, fish and aquatic insect studies, wind energy and his Master's thesis at UTA was on the Desert Firetail Damselfly.

Websites of Interest…

All About Birds:
https://academy.allaboutbirds.org/features/birdanatomy/

Blackland Prairie Texas Master Naturalist Calendar http://bptmn.org/calendar/

Cornell Lab of Ornithology –
http://www.birds.cornell.edu/Page.aspx?pid=1478

Earthkind Landscaping
http://aggie-horticulture.tamu.edu/earthkind/

Green Source DFW
http://www.greensourcedfw.org/

Ladybird Johnson Wildlife Center
https://www.wildflower.org/

Texas Aggi Horticulture
http://aggie-horticulture.tamu.edu/

Texas Parks & Wildlife Updates
https://tpwd.texas.gov/

Texas Smartscape http://www.txsmartscape.com/

Texas Superstar Plants http://
www.texassuperstar.com/plants/