

Fredericksburg Nature Notes



Newsletter of the Friends of the Fredericksburg Nature Center

September, 2023 Volume 4 Number 9

<http://fredericksburgnaturecenter.com>

Editor's Musings: **Lonnie Childs**

Dear Friends of the Fredericksburg Nature Center,

We recently received exciting news that FFNC has been awarded a \$7,000 grant from the **Community Foundation for the Hill Country** which will fund a “**Varrobook**” exhibit in the Pollinator Garden. The exhibit will inform visitors about who the pollinators are, why they are so important to life on earth, and what constitutes a proper pollinator garden. We are very thankful to the Community Foundation for their generous gift that will allow us to deliver informative non-staffed programming. If you want to learn more about the “Varrobook” exhibit concept. go to <https://www.varrobook.com> .

Our **Interpretive Center project** continues to move forward in partnership with Brandon Weinheimer of SKT Architects. We are finalizing our design concept statement that will define the scope of the project in more detail and enable the development of conceptual drawings by SKT over the coming months. By November, we plan to have some “rendering” drawings that will provide a pictorial for you to view and better visualize the proposed facility and site. At that point, we will become more public with our fundraising efforts and communications with the community. If there is an organization that you believe might be interested in hearing more about our project, please contact me, and we can arrange for a presentation. If you would like to become more involved or provide financial support, we would be excited to discuss the project with you in greater detail. We will only succeed with your generous community support.

Despite the unbearable heat, our intrepid volunteers continue to maintain and enhance FNC, and we are especially grateful for their efforts. If you see them at the park, please tell them thanks. Working in this heat, you won't want to hug them!

Happy Nature Trails!

Lonnie

In this Issue:

- FFNC Activities
- Blumen & Buzzin' at the Garten
- Wings Over FNC
- Lights Out for the Real Snowbirds
- Feature Story: *The Age of the Beetles*





OUR MISSION STATEMENT: *“To enhance, protect and interpret the natural ecosystems of the Texas hill country while providing educational and quality of life opportunities for members of the community and visitors.”*

FFNC Activities—Happy Volunteers at Work!



#1



#2



#4

- #1 Deb Youngblood sights a photo op
- #2 Phil Youngblood toils at the PG
- #3 Billy Guin & Lonnie Childs at HCMN volunteer fair
- #4 Laurel Rhodes



#3

Tuesday Fundays at FNC are in full swing!

We continue to perform **Trail Work** with ongoing maintenance and improvement projects. **Gardening Activities** are in full swing with cleaning, trimming, and weeding.

Typical tasks involve gardening skills and trail maintenance, but no experience is necessary. Use it as a learning opportunity. Work in whatever area you choose for as long as you choose. We work some and have a lot of fun outside in the beauty of nature. It’s good exercise for the body and great therapy for the soul.

If you would like to join us at the park, we would love to have you!

Work sessions are typically scheduled for **Tuesday at 8:30am**.

Contact Gracie Waggener at gwaggener@flow-apps.com to receive a weekly email notification about scheduled work tasks for the coming week.

Volunteer!



"Tell me, and I forget, teach me, and I may remember, involve me, and I learn."

Benjamin Franklin

FFNC Activities—Eclipse Workshop is Out of this World

Approximately 100 attendees were treated to an informative and entertaining workshop by retired NASA engineer and eclipse chaser, Jeff Stone, about the upcoming Annular Eclipse on October 14, 2023, and the Total Eclipse on April 8, 2024. Participants learned about the astronomical mechanics that produce these events, and how to safely view them. By the luck of some celestial lottery, Fredericksburg is fortunate to lie on the central path for both of these solar eclipses.

For more information:

Great American Eclipse

<https://www.greatamericaneclipse.com/>

NASA Eclipse Website

<https://solarsystem.nasa.gov/eclipses/home>

American Astronomical Society

<https://eclipse.aas.org/>

<https://hillcountryalliance.org/eclipse/>

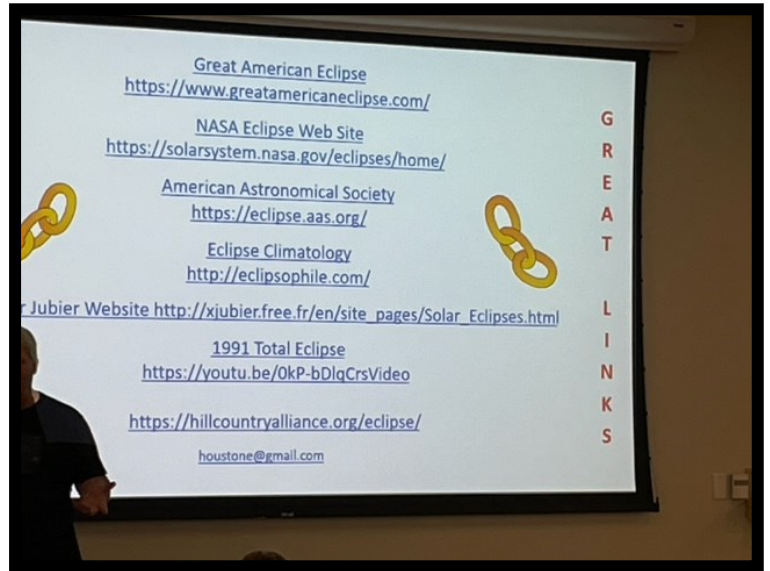


Photo by Cathy Downs



The Eclipse Workshop was followed by a star party in the parking lot featuring solar viewing, various galaxies with ethereal shapes, constellation viewing, and an occasional meteorite spawned by the Perseid meteor shower. Many thanks to the Hill Country Astronomers who set up their telescopes & patiently educated us on the wonders in the night sky.



“Education is the kindling of a flame, not the filling of a vessel. “

Socrates

Upcoming Programs—Save the Date!

September 13—Monarchs and Milkweed Propagation II

Presenter: Cathy Downs, Hill Country Master Naturalist

Lady Bird Johnson Municipal Park, Tatsch House

10:00 A.M. to 12:00 Noon.

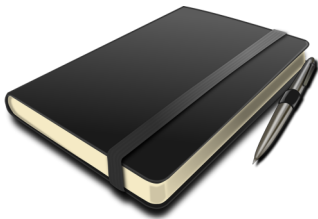
REGISTRATION IS CLOSED.

October 28—Learning Through Nature Journaling

Presenter: Nancy Huffman, Hill Country Master Naturalist

Lady Bird Johnson Municipal Park, Tatsch House

10:00 A.M. to 12:00 Noon



Monarch on Milkweed (*Asclepias tuberosa*)

Photo by Lonnie Childs

Blumen at the Garten



Photo by Dot Maginot

Datura or Thorn Apple
(Datura wrightii)

Beautiful but deadly. All parts of the plant are poisonous.



Photo by Dot Maginot

Unidentified Aster

Asters may be the largest family of flowering plants in the world matched only by the Orchids.



Photo by Lonnie Childs

Lindheimer's Senna
(Senna lindheimeriana)

Nectar source for butterflies,
pollen source for bumblebees,
seeds for birds.

"Bugs are not going to inherit the earth. They own it now. So we might as well make peace with the landlord."

Thomas Eisner

Buzzin' at the Garten



Photo by Deb Youngblood

Left:

Beelzebub Bee-eater or Black Bee Killer (*Mallophora leschenaultia*) is a very large species of robber fly that preys on other bees. This Mexican migrant species is not common in Texas.

Below Left:

Sonoran Bumblebee (*Bombus sonorus*)

Below Right:

Eastern Amberwing Male (*Perithemis tenera*) is native to the eastern 2/3 of the US. This dragonfly actively mimics a wasp with yellow & brown stripes on its abdomen encouraging predators to stay away. When perched, they will wiggle their abdomen and wings in a wasp-like fashion.

Photo by Dot Maginot

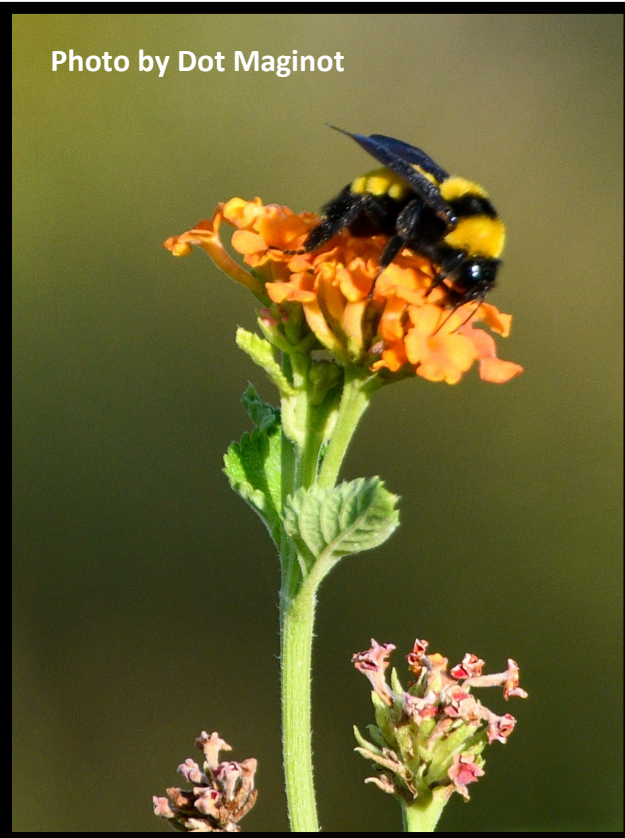
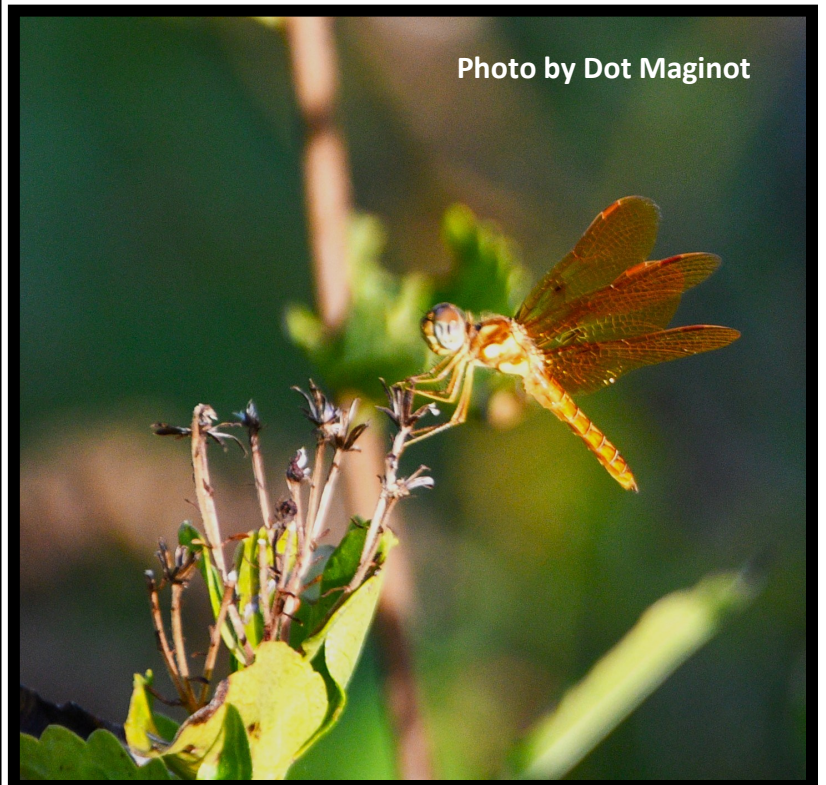


Photo by Dot Maginot





"Birds are indicators of the environment. If they are in trouble, we know we'll soon be in trouble."

Roger Tory Peterson

Wings over FNC



Black-chinned Hummingbird female

(*Archilochus alexandri*)

Perching in the top of a tree is typical behavior. She appears to have fattened well as she begins her migration south. Note its iridescent green coloration which is the result, not of pigments, but of light passing through melanin granules that refract the light like a prism. Dependent on the angle of the light, the refracted colors will vary.



Great Egret (*Ardea alba*)

The Great Egret is the symbol of the National Audubon Society which was founded to protect birds from being killed for their feathers. Egrets nest & perch in trees, but feed in water.

Photos by Dot Maginot



“Migratory birds connect people and places across the globe. Let’s celebrate their amazing journeys and work together to protect them.”
Unknown

Lights Out for the Real Snowbirds



Bird Lover Tip of the Month

Lights Out Gillespie County!!

The fall bird migration has started, so it’s time to implement measures to reduce mortality in the billions of migratory birds that fly over Texas annually.

Full Fall Migration Period: August 15 – November 30

Peak Fall Peak Migration Period: September 5 – October 29

Following are some actions that you can take.

- Turn off all non-essential lights from 11:00 p.m. to 6:00 a.m. each night during migration season.
- Do not use landscape lighting to light up trees or gardens where birds may be resting.
- For essential lights (security & safety lighting), use the following dark skies friendly lighting practices:
 - > Aim lights down;
 - > Use lighting shields to direct light downwards and avoid light shining into the sky or trees;
 - > Use motion detectors and sensors so lights are only on when you need them;
 - > Close blinds at night to reduce the amount of light being emitted from windows.

For more information, go to <https://tx.audubon.org/urbanconservation/lights-out-texas>

Nature’s News of the Weird



Two Heads are Better than One, Unless They are Connected to the Same Body! Read all about it.

Right Click [HERE](#) & Open Link



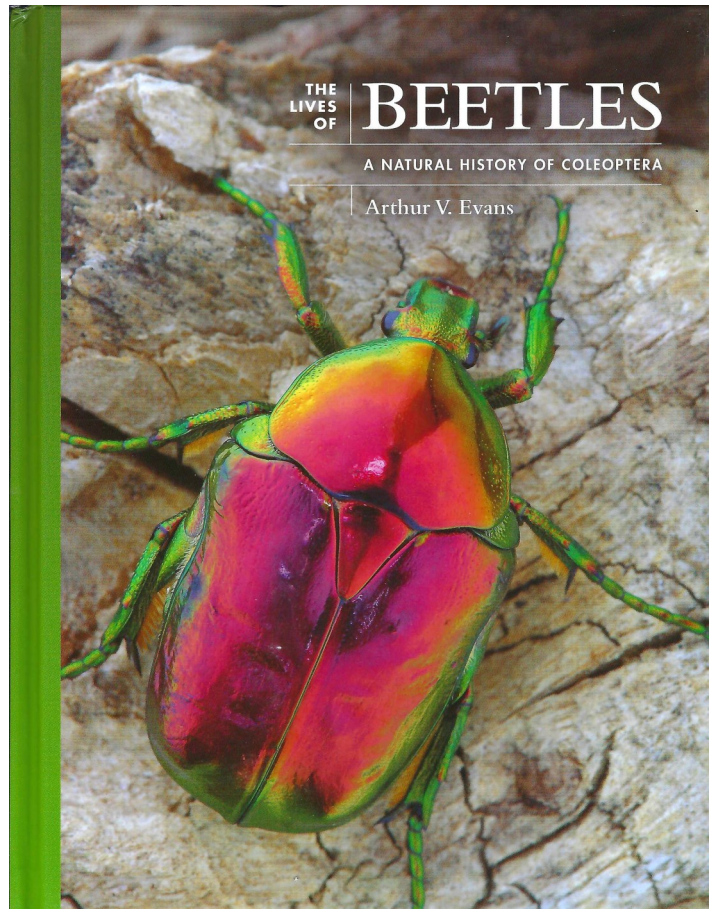
"If one could conclude as to the nature of the Creator from a study of creation, it would appear that God has an inordinate fondness for stars and beetles." John B. S. Haldane

Feature Story: *The Age of the Beetles* by Lonnie Childs

No, not John, Paul, George, and Ringo. The real and original beetles that date back 322 million years ago and now dazzle the earth with immense biodiversity and a cornucopia of colors and shapes that would outshine a David Bowie and Lady Gaga concert combined. The sheer numbers of beetle species, estimated at 400,000 (22% of defined species), surpasses all the vertebrate species combined by a factor of 10 and suggests that they might in fact be #1 on the all time hits list of most successful organisms. Add to that the theory that beetles were probably the original pollinators of the first flowering plants, and even today they reign as important and prolific pollinators. Beetles rule!

What is the evolutionary key to their longevity and success? First and foremost, their armored body design provides for defense but also enabled a diversity of behaviors ranging from flying to scrambling to squeezing into cracks to hide. Their tough exoskeleton functions as both skin and skeleton, and if viewed with a microscope would reveal an array of intricate structures that provide varying functionality. The exoskeleton consists of segments that are connected by flexible hinges like a suit of medieval armor that provide for their mobility. The sum of all this evolved morphology is a small, compact body resembling the Mars Rover with all its sturdiness and mobility.

Habitat and Adaptability. Because of their diverse morphology and adaptive behaviors, beetles populate a huge diversity of habitats with one common feature— a diversity of native plants. Some beetles inhabit living plants but also decaying logs and snags. Others can live amongst the lowly fungi and mosses under rocks and other debris. There are beetles who enjoy rolling around in leaf litter and compost while their aquatic cousins appreciate a life on streams, in ponds, or along their shorelines. And then there are the dung beetles who enjoy that stuff and their carrion consuming cousins who relish rotting flesh. The diversity of beetle morphology and behavior allows them to thrive in a wide assortment of habitats which in turn better ensures the survival of the beetle family. The only environment where they do not thrive is one tainted with pesticides.



Beetles are classified in the *Coleoptera* order which was first described as a group by Aristotle. The name derives from Greek words that translate to "winged sheath". Linnaeus consecrated this order in his system of classification.

“Any foolish boy can stamp on a beetle, but all the professors in the world cannot make a beetle.”

Arthur Schopenhauer

Feature Story: *The Age of the Beetles*

The great defenders. As I previously mentioned, the evolutionary success of beetles rests partially on their varied and successful defensive strategies. Perhaps because of their large species and population numbers present in a diversity of habitats, it seems that everyone enjoys a *Coleopteran* culinary delight—mammals, birds, amphibians, spider, ants, robber flies, and even other beetles. Some attack at night while others prey in the day. What’s a beetle to do?

Beetles have evolved a wide variety of defensive strategies to counter these ever-present predators. Their first line of defense is **structural** and depends on their thick, hard exoskeleton that serves as a shield and which is complemented in some species by folding or strong legs, horns, formidable mandibles, sharp claws, or size. These structural advantages may be supplemented in some species with **defensive behaviors** like running fast, jumping when attacked, hunkering down like a turtle, or engaging in thanatopsis (.i.e death feigning).



Photo by Bill Lindemann

Long-horned Beetle or Longicorns are members of the *Cerambycidae* family which includes 35K species. A few like the invasive Asian species are destructive in the US.

Adding to these structural and behavioral strategies, other beetles utilize **chemical defenses** that rely either on special glands to produce toxins or extract them from food to be stored in chambers or in their blood. The delivery mechanisms for these defensive toxins are equally varied, but my favorite are the bombardier beetles who possess an anal turret for spraying out caustic hydrogen peroxide gas. Many of us have encountered beetles who emitted noxious odors including ammonia gas (i.e. “stink bugs”), or perhaps unfortunately had an encounter with a blister beetle who discharge a bright yellow caustic compound from their leg joints that can produce blisters on the human skin. For justifiable reasons, beetles have evidently never signed on to the UN ban on the use of chemical weapons.

The final category of defensive strategies involves the use of **coloration** to disguise themselves to trick potential predators. Many species use what is known as aposematic coloration which warns the predator that they will not be a suitable meal for some reason. Others will have coloration that mimics another undesirable species and thus tricks the predator. This combination of defensive techniques represent the same relationship between Monarch and Queen butterflies. Finally, many species employ camouflaging coloration



"I feel like an old warhorse at the sound of a trumpet when I read about the capturing of rare beetles."

Charles Darwin

Feature Story: The Age of the Beetles

(i.e. Mimesis) as a method to disappear into their habitat. Interestingly, iridescent coloration which is frequently seen on many beetles may be used as aposematic coloration or as mimicry.

Are beetles pests? Depends on the species and your perspective. As mentioned earlier, beetles provide significant pollination services. Plant – eating beetles perform a vital ecological service in breaking down plant materials into nutrients that can be recycled into the environment. Almost every plant species hosts a beetle that feasts on its vegetation. They can also serve as biocontrols on plant populations, not allowing them to grow beyond sustainable limits. However, when beetle populations attack ornamental and landscape plants, agricultural crops, and timber forests, they can exact economic damage.



Photo by Lonnie Childs

Tiger Beetles are members of the *Cicindelidae* family which are known as fast runners & ferocious predators.

These negative impacts often result from invasive (Non-native) species with no natural biocontrols present which frees them to spread aggressively and inflict environmental and/or economic harm. Many of our beetle pests are either Asian or European in origin such as the Japanese beetle that inflicts major harm to ornamental or agricultural plants in the eastern US, the longhorn beetle that ravages hardwoods, or the emerald ash borer which attacks ash trees and has migrated from the eastern US and Midwest into Texas.

In the **ecological benefits** ledger, I have already mentioned several important ecological services proffered by beetles. Although I personally have reservations about the introduction of any non-native species, beetles are being employed as biocontrols against invasive plant species with some success. The best example is the use of the tamarisk beetle to combat the tamarisk choked streams in the western US—tamarisk was unfortunately introduced for erosion control. As I said, humans fixing environmental problems created by humans fixing environmental problems worries me.

In the **cause of science**, *Dermestes* beetles are flesh-eating beetles which make rapid meals of faunal specimens to produce skeletons for research. The defensive secretions of some beetles are complex compounds that offer potential breakthroughs for medicine and science but have been little studied to date. On the subject of food, three hundred beetle species provide sustenance to humans around the world. With the rising costs of animal based protein, some are lobbying for the increased farming and consumption of insects such as beetles as a sustainable food source. Are you ready for a MacBeetle? Barbecued beetle? Or more likely mealworm flour?



“The idea of beetles came into my head. I decided to spell it BEATles to make it look like beat music, just a joke.”

John Lennon

Feature Story: *The Age of the Beetles*

Beetles and Humans. The historical record preserves a long history of the association of human civilization with beetles. Their image appears in rock art, statuary, jewelry, precious stones, coins and manuscripts. Ancient Egyptians were enthralled with dung-rolling scarabs and featured them in hieroglyphs as symbols of protection, growth, and existence. In Egyptian times, beetles were truly rock stars, literally. In current times, one Central Mexican species adorns women’s dresses affixed to a chain as living jewelry.

Why beetles are important. While ancient civilizations appeared to appreciate the value of beetles, their status in the modern world is not so assured. Their ubiquity, adaptability, and evolutionary success has earned them their significant status in the ecological hierarchy as a paradigm for biomimicry (i.e.) They offer us important ecological services and opportunities for future research that could inspire advances in medicine, science, and technology. Yes, they can appear as ugly, creepy crawlies spraying stink bombs out of their anuses, but put on your ecological citizens hat, and try to look past their bad habits. John Lennon did.

Soldier Beetles (*Cantharidae*) are relatively soft-bodied, straight-sided beetles that are widely distributed.

Photo by bill Lindemann





"Nature is loved by what is best in us."

Ralph Waldo Emerson



**Yellow-billed Cuckoo (*Coccyzus americanus*)
Photo by Bill Lindemann**



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**Comments, questions, or future newsletter submissions can be sent to
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