



***Mission.** 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.*

CHAPTER MEETING

Guadalupe Master Naturalists Monthly Program and Meeting

Date: Monday, September 28, 2020

Time: No social time planned

7:00 PM – Program Chapter President Tom Hardaway will present “Making Dirty Water Clean Again.” Tom says, “We take clean water, use it to wash our clothes, bathe in it, drink it, run it through our commodes, then clean it up so we can do it all over again! But exactly how does that all work? Well, join us at the monthly Chapter meeting for a stroll through a wastewater treatment plant and find out. Everything you wanted to know about sewage but were afraid to ask!”



Here’s a link to a graphic that will get you started on the program topic:

→ <https://www.gbra.org/wastewater-treatment-facility/index.html>

8:00 PM – Chapter Meeting

Location: AgriLife Extension Service, 210 E. Live Oak, Seguin and online virtual via Webex.

VOLUNTEER OPPERTUNITIES



Date: Wednesday, September 2, 2020

Time: 9:00 am – 4:15 pm

Location: Online [WebEx Event - invite link will be sent to your email used when registering]

Description: Our two sponsoring agencies, Texas Parks & Wildlife and Texas A&M AgriLife Extension Service, will present a series of 10-minute long project sessions highlighting 31 projects. You will be able to sign-up to volunteer with the projects presented. The information sent out gives these details,

“Project Volunteer Registration” “At the completion of EACH project proposal and then again at the end of the event, we will share the survey. Also linked here:

<https://www.surveymonkey.com/r/TMNVolunteerFair>

Texas Master Naturalist Volunteers will use this survey link to select which Service Project(s) they are committed to volunteering with. This survey will stay open for the month of September, but the first pull of volunteer signup lists will be done on September 8th!

I will re-send the email message to each of you so you have all the details and links, how to register, the agenda and full catalog of projects.

NATURE EDUCATION COMMITTEE

The leaders of Nature Education, Nancy Masterson, Mark de Kiewietz and Kate Schnautz, have been thinking outside the box. They have developed creative methods to continue serving the children with nature-inspired programming.

The September Discovery program, Bugs World, has been canceled. But, they are moving forward with the October program Horns and Thorns. This is a newly developed activity and there will be no-touch take-home packets. Dates will be Saturday, October 10 at Crescent Bend Nature Park and Monday, October 12 at the Seguin Public Library.

CITIZEN SCIENCE

Pollinator Garden at Park West / Monarch Monitoring

Date: Wednesday mornings, September 2, 9, 16, 23, 30

Time: 8:30 AM

Location: Park West, 601 N. Vaughn, Seguin

Description: Help with general care and maintenance of the garden and the planting new plants as needed.

The Monarch migration will be starting; Liz Romero reports the monitoring will start this next week. John Edson has reported a sighting saying, “We watched an adult female thru binocs for over 30 minutes feeding on basket flowers. Plenty of time for a positive ID of this large butterfly with no apparent damage.”



FOREST HEALTH

Still too much solar radiation for tackling forest invaders at Park West. Leader Chris Dyess plans to start activities in November. Use this time to clean and sharpen your tools to attack the bamboo and Ligustrum this Fall.



ADVANCED TRAINING

Wildscape Workshop sponsored by Houston Chapter, Native Plant Society of Texas-certified

Spanning the first three weeks of September, we'll have 4 great speakers discussing fireflies, how urban forests mitigate climate change, wetland plants and a review of plants for sale. One registration entitles you to a link to the presentations and also early bird plant shopping (1 day early). We appreciate any additional donations you add to your purchase.

Speakers Schedule:

Tuesday, September 1, 7:00 pm

Ben Pfeiffer- Firefly Conservation & Research

"Fireflies of Texas: A Look at Texas' Remarkable Bioluminescent Diversity"

Thursday, September 3, 7:00 pm

Jaime González- The Nature Conservancy

"Houston Grows Cooler: Heat mapping and Restoration of Urban Forest to Fight Climate Change "

Tuesday, September 8, 7:00 pm

Mary Carol Edwards- Green Star Wetland Plant Farm

"Encountering Wetland Plants that Thrive in Challenging Gardens (like yours!)"

Thursday, September 10, 7:00 pm

Mark Morgenstern- Morning Star Prairie Plants

"Native Plants of South East Texas"

To learn more about the event, visit our website, <https://npsot.org/wp/houston/> or

<https://npsot.org/wp/houston/event-overview/wildscapes-workshop/>



Birding for Beginners

Date: Wednesday, September 2

Time: 6:00 - 7:30PM

Location: ZOOM Webinar

Description: *Birding is an incredible hobby that will have you pursuing the joys of nature for a lifetime. If you're a beginner and want to learn the birding basics, then this webinar is for you! Experienced birder and educator Angel Poe will lead you through an exploration of the skills, gear, and resources that will help you become a better birder.*

She'll offer easy tips for getting started right in your own backyard, as well as offer advice for getting out into the field.

About the presenter: Angel Poe is the Education Specialist at Mitchell Lake Audubon Center in San Antonio, Texas. An experienced classroom educator and self-professed bird nerd, Angel brings a passion for connecting people to the natural world. Angel started birding in her early thirties, so she understands the needs and questions of beginning birders and loves helping others develop their own interest in birding.



Registration: Use this link <https://mitchelllake.audubon.org/events/birding-beginners>

Free but registration is required

Sponsored by Mitchell Lake Audubon Center

The Littlest Birds Sing the Prettiest Songs

Date: Tuesday, September 8, 2020

Time: 6:30 – 8:00 PM

Location: ZOOM Webinar



Description: Dr. Christopher J. Clark, Associate Professor University of California Riverside, will present recent results from research on how Costa's Hummingbirds learn their songs, as well as research about how they produce an amazing array of sounds with their wings and tail-feathers, with emphasis on hummingbirds of Texas.

Registration: Use this link <https://mitchelllake.audubon.org/events/littlest-birds-sing-prettiest-songs>

Fee: \$5.00

Sponsored by Mitchell Lake Audubon Center, co-sponsored by Bexar Audubon Society

Birds on Your Block – Get to know your neighborhood birds!

Date: Thursday, September 17

Time: 6:00 - 7:30 PM

Location: ZOOM Webinar

Description: Have you wondered what birds you're seeing as you walk through your neighborhood? Do you want to know how to identify "parking lot and power line" birds? Join Audubon educators from the state of Texas as we discuss common backyard and urban birds in our neighborhoods! We'll also give pointers on how to identify common birds without binoculars, provide some skill-building tips, and help you connect with other birders in your community.

Registration: Use this link <https://mitchelllake.audubon.org/events/birds-your-block>
Free, but registration required. Sponsored by Mitchell Lake Audubon Center

Harvest and Use of Native Seeds in the Garden and in Restoration

Date: Tuesday, September 22

Time: Log-in at 6:45; Meeting and program at 7:00 PM

Location: ZOOM meetings

Description: David Mahler will share his experience of harvesting native seeds. In addition to the why, where, when, and how he will include specifics related to the economics, ethics, recording keeping, storage and more. Highlighted will be examples of using harvested seed for the reestablishment of species at the Spicewood Ranch near Austin. Sponsored by San Antonio Chapter, Native Plant Society of Texas



Bluebonnet Seeds

Registration: Visit this link <https://npsot.org/wp/sanantonio/harvest-and-use-of-native-seed-in-the-garden-and-in-restoration/>

Texas Children in Nature – Virtual Summit **Teachers and Students Learning Outdoors** **Dr. Sandra Johnson**

Date: Wednesday, October 2, 2020

Times: 2:00-3:00 PM or 7:00 – 8:00 PM

Location: Webinar

Description: This workshop is for both formal and informal educators teaching in an outdoor setting. Teachers would like to take their students outdoors to learn, but don't always know what the best methods would be. They wonder, "How do I maintain interest of the students and control of student behavior while meeting the state standards?" They wonder, "How do I make this concept developmentally appropriate, engaging for students, and meet state standards."



Registration: <https://www.eventbrite.com/e/tcin-2020-summit-session-teachers-and-students-learning-outdoors-tickets-116933357821> **Suggested donation \$20.00**



2020 Annual Meeting October 14 – 17, 2020

This year's meeting presents an opportunity to "attend" even more sessions than ever before. With the virtual format for this year's Texas Master Naturalist Annual Meeting, sessions will be offered from Wednesday October 14th through Saturday October 17th from 9am through 4pm, most days and with a lunch break every day. We also have some fun, extra sessions lined up for pre-conference and each evening during the conference week, we're hoping to host virtual socials and watch events. The cost for the event is a **flat rate of \$55** for all attendees for the full virtual conference. Registration will include access to all virtually offered technical sessions, the general sessions and some fun surprises offered the weeks surrounding the Annual Meeting. While we're not able to offer discounts this year, we are happy to offer this lower registration price for our meeting with the new virtual platform. Due to the virtual format and reduced registration fees for this year's Annual Meeting, there will be no refunds available.

Visit the website <https://txmn.tamu.edu/2020-annual-meeting/> for full information.

Native Landscape Certification Program – Level 1

Date: Saturday, October 3, 2020 and Monday, October 5, 2020
Time: 8:45 am – 2:45 pm 2 hour time slot between 9 am and 4 pm
Location: ZOOM for Saturday class Cibolo Nature Center for plant hike
Description:

- Learn the value of including and preserving native plants in landscapes
- Understand the differences between sustainable and conventional development
- Discover your Texas ecoregion, vegetation, and soil.
- Become familiar with 45 native Texas plants recommended for your landscape and 5 plants to avoid

ONLY SIGN UP FOR THIS CLASS IF YOU ARE WILLING TO ATTEND THE IN-PERSON PLANT WALK. Only groups of 5 will be allowed in the vicinity at any one time. You must wear a mask. Social distancing will be practiced. Hand sanitizer will be available. Upon arriving at Cibolo Nature Center, you will be asked a series of questions regarding your current state of health and potential exposure to COVID 19. You must sign in to participate.

Registration: <https://npsot3.123signup.com/event/details/rkyhm>

Fee: \$37.00

Chimney Swifts

By Seth Faught

I did a study for my Undergraduate Certificate for Fish and Wildlife on Chimney Swifts and thought everyone would like to see a portion of the study. I also have PowerPoint that gives a quick in-depth overview of the species.



Chimney Swift (*Chaetura pelagica*) are part of the family (Apodidae) Swifts, which are a small aerial bird that are grey-brown. They are one of 80 species in the world, and of those 80 only four are frequent visitors to North America (Texas A&M, 2019). These are migratory birds that nest and breed in North America during the spring and summer, then move down to South America for the winter (Houston Audubon Society, 2019). Currently they are not on any state or federal list, but are considered a species of concern. There is so much of a concern that Canada is looking to list them with the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as threatened in their country (Houston Audubon Society, 2019). According to Texas A&M, the species was rare in Texas before 1925, but increased in numbers by 1940 (Texas A&M, 2019). The Avian Conservation and Ecology states that the swifts started increasing in numbers in other areas after the colonization of North America (ACE, 2010). The range of these birds were originally known to be in hollow trees, but then started to be limited to human populations as they became accustomed to utilizing chimneys for nesting purposes. Now the numbers are in decline due to the decline in chimneys and/or changes to the way chimneys are made.

In the research that has been conducted so far, it has been found that there are management plans in the US and Canada. According to the Avian Conservation and Ecology, there is a Quebec Chimney Swift Monitoring Program that works to monitor the occupancy patterns at roost sites, spatial and temporal distribution of the species across the province, location of active nest sites, and temporal fluctuations of the population (ACE, 2010). In the US, the Audubon Society recommends citizens to not cap chimneys (unless ceramic or metal) or to build chimney-like structures. There are numerous conservation groups within the US that are promoting conservation through education. Since the birds have not been officially listed in the US, the conservation efforts are still on Citizen Scientist groups. One of these such organizations is the Chimney Swift Conservation Association that has a website that provides multiple resources on the swift. Whether official country/state management or private management, there are plans to help the success of the Chimney Swift in a time of decline.

Chimney Swifts are known to inhabit hollow trees or chimneys, and feed on flying insects. A study performed by the Avian Conservation and Ecology, found that while Chimney Swifts can inhabit hollow trees, the preferred location for nesting and/or roosting is in a chimney (ACE, 2014). The use of chimneys is noted to be connected to the colonization of North America. The insects that swift typically are seen consuming are mosquitoes, flies, ants and termites, but not limited to those (Houston Audubon Society, 2019). These flying acrobats have been proven to lower numbers of flying insects within the areas that they roost in.

The threats to Chimney Swift are known to be natural and unnatural causes. According to the Avian Conservation and Ecology, there was a decline noticed after Hurricane Wilma, which they have since added to their studies to find what the effects of natural disasters are on the swifts (ACE, 2010).

The other issues are on the human need for resources, i.e. trees, that has increase the decline of these birds. Though it has been found that they do not solely utilize trees, it has been found that as more trees are removed for development or lumber, the natural habitat for the swifts has declined. Though both of those have been seen as causes for decline, the most detrimental found, and expected in the near and far future, are changes being made to chimneys. As stated before, chimneys have become a preferred nesting/roosting location and now are becoming the biggest concern for the success of Chimney Swifts. Homeowners are capping chimneys, building/replacing chimneys with ceramic or metal chimneys (uncapped), and/or allowing cleaning of chimneys during times when the swifts are present. This last situation has become the number one focus among all organizations wanting to protect the Chimney Swifts.

The things that can be done on private and public properties to mitigate some of these losses are simple. The picture below is an example of what is called a false chimney; this one is located on the Warbler Woods Sanctuary. There is a YouTube show put on by Texas Parks and Wildlife (Saving Chimney Swifts) that shows how these are proving to provide new/safe homes for Chimney Swifts. There are also numerous locations to find construction plans for these false chimneys on the internet and You Tube. The other thing that must be done is educating our public on what to do with their chimneys. Simply knowing the type of chimney we have and whether to cap it or not will provide safety for these beautiful migratory birds.



References:

1. Houston Audubon Society, McClean, Jess (2019). Chimney Swift. Retrieved August 16, 2019 from <https://houstonaudubon.org/birding/gallery/chimney-swift.html>
2. Avian Conservation & Ecology (ACE), Carolyn Zanchetta, Douglas C. Tozer, Trina M. Fitzgerald, Kristyn Richardson and Debbie Badzinski (2014). Tree cavity use by Chimney Swifts: implications for forestry and population recovery. Retrieved August 16, 2019 from <http://www.ace-eco.org/vol9/iss2/art1/>
3. Texas A&M Agrilife Extension (2019). Chimney Swift (*Chaetura pelagica*). Retrieved August 16, 2019 from <https://txtbba.tamu.edu/species-accounts/chimney-swift/>
4. Texas Parks and Wildlife (TPWD) (2019). Texas Partners in Flight - Chimney Swift Conservation Challenge. Retrieved August 16, 2019 from https://tpwd.texas.gov/huntwild/wild/birding/pif/chimney_swift/
5. Avian Conservation & Ecology (ACE), Sébastien Rioux, Jean-Pierre L. Savard and François Shaffer (2010). Scientific and Cost Effective Monitoring: The Case of an Aerial Insectivore, the Chimney Swift. Retrieved August 16, 2019 from <https://www.ace-eco.org/vol5/iss2/art10/main.html>
6. Kyle, Paul D. (1950). Chimney Swift Towers: New Habitat for America's Mysterious Birds. Retrieved September 26, 2019 from <https://books.google.com/books?hl=en&lr=&id=qcQxwlvpyogC&oi=fnd&pg=PA7&dq=chimney+swift+habitat&ots=GHIQNR8jdz&sig=DKY5lfdOsFiHX-8CJfKGrWt-YFA#v=onepage&q=chimney%20swift%20habitat&f=false>
7. NC Audubon (2016). Build Your Own Chimney Swift Tower: Take Action to Help Protect Our 2016 Bird of the Year. Retrieved September 28, 2019 from <https://nc.audubon.org/news/build-your-own-chimney-swift-tower>

Image

1. Greg Lasely (2019). Chimney Swift *Chaetura pelagica*. Retrieved September 22, 2019 from <https://www.audubon.org/field-guide/bird/chimney-swift#photo4>
2. Seth Faught (2019). Swift Tower at Warbler Woods Sanctuary.

VARMINT OF THE MONTH – VELVET ANTS

By David Benbow

We have a lot of Bumble Bees buzzing around our flowers all summer. They are great pollinators, good-looking with their fuzz and distinct coloration; and, even though they carry a pretty mean sting, they only use it if you disturb their nest, which is usually at ground level or underground.

But, this article is not about Bumble Bees, it's about one of their main enemies, the Velvet Ant (*Dasymutilla occidentalis*). Also known as the "Cow Killer." It is quite a handsome insect itself, with its orange and black coloration and its own fuzzy, velvety coat.



The Velvet Ant is actually a wasp. The large, solitary critter that you see racing along the ground, going who knows where, is the female, which is wingless. Don't try to pick this thing up. It has one of the most powerful stings in the insect world, so I am told. If you want to catch one, capture the male, which flies around, and doesn't sting. I'll admit, I don't remember ever seeing a male, but I have stomped many a female, only to see them scurry on their way, unfazed. They are as tough as a stone.

So, why kill them? They don't seem to bother anything unless you pick them up. Here's the reason. If you wonder where they are going in such a hurry, they are looking for a Bumble Bee nest, or the nest of any other ground dwelling insect, for that matter. Velvet Ants lay their parasitic eggs in the nests of Bumble Bees, and you know the rest. They also prey on Cicada Killers, another annoying flying creature which nests in the ground. If they stuck to the Cicada Killers, I'd be okay with them.

They are solitary, ground-bound, colorful and easy to spot, and not really very fast, even though they are in fifth gear at all times. This apparent vulnerability is more than compensated for by their arsenal of defenses. Aside from their extremely tough exterior and a powerful sting, they also can bellow out a strange, loud squeaking noise when threatened. Not only that, they can emit various evil smelling chemicals, which not only discourage larger would-be predators but also repel genuine ants, including fire ants, red harvester ants and carpenter ants. I also read that the chemicals they release when threatened also signal any other Velvet Ants in the area that danger is present. Their worst threat is finding themselves on a concrete surface near a heavy-footed, boot wearing human.

I don't know how they got the name Cow-Killer. I suppose it is just over-statement to describe the pain of their sting. Cow fatalities are thus far unknown to science.

I know from personal experience that other creatures are very wary of them. When I was a boy on the farm, one of my pastimes was "feeding the garden spider." I would catch grasshoppers, katydids and the like and pitch them into the big web of a garden spider. The spider would race down and quickly wrap up the victim in his white shroud, and then race back to his perch in the center of the web. One day I trapped a Cow Killer in a Mason jar and decided to pitch him into the Garden Spider web. The Cow Killer was so big and heavy, that it took several throws to get him to stick in the web. Finally, he (she) stuck and, sure enough, here came the Garden Spider. The spider got within about an inch of the Cow Killer, and all of a sudden, the Cow Killer let out with a loud, screeching buzz while flailing around, still stuck to the web. The spider stopped on a dime, waited a few seconds, backed off carefully and retreated back to his perch. He wanted no part of the Cow Killer. I don't remember a bad smell from this encounter, but the Garden Spider probably did.

Chiggers, Itchy and Annoying
By Clara Mae Marcotte

Chiggers are the bane of my existence, which, considering all that's going on the world today, is probably a positive statement. Every time I go out to my wildscape area in the backyard, I end up with chigger bites (in spite of bug spray).



Chiggers are also known as red bugs, harvest mites, scrub mites or bete rouge. They are not insects but are relatives of spiders and ticks. Wikipedia considers the best known species in North America to be [Trombicula alfreddugesi](#) which is found in the southeastern U.S, the Midwest, and Mexico.

These mite larva occur in overgrown brushy or grassy areas, and in shady, humid areas near stream banks, under and around trees and in berry thickets. I've even come back from the pollinator garden with new bites after I've been kneeling to weed. The chiggers attach to clothing, then crawl onto the skin to find the best feeding site. An entomologist from the University of Kentucky says they do not burrow into the skin or feed on blood or carry diseases. If you leave them alone, they could stay attached and feed for several days.

Chiggers' favorite spots are places on the body where clothing is tighter or in skin folds, or where the skin is thin, tender or wrinkled. (Maybe that's why I get bitten.) The digestive enzymes that chiggers use to liquefy our skin cells cause the rash and itching that drives us crazy for 24 to 48 hours. According to the American Osteopathic College of Dermatology, the dead skin cells form a tube called a stylostome which the larva uses to withdraw digested tissue.

Suggestions for controlling chigger infestation rely on measures which are against our wildscape principals. These include pruning trees and bushes and closer mowing to allow more sun and less humidity, as well as removing brush piles and debris so that there will not be protection for small mammals that are chigger hosts. Insecticide spray can also be used, although this is another control that most of us do not like. A third solution mentioned in aggie-horticulture and also talked about by David Benbow last month was the fact that red imported fire ants feed on caterpillars, chiggers, cockroach eggs, flea larvae, and ticks. (This, however, is no reason to start a bed of fire ants as far as I'm concerned.)

Aggie-horticulture had a question from a reader who had heard that chiggers didn't infest a St. Augustine grass lawn as vigorously as a Bermuda lawn. The answer was that there was no proof of this. If you do have lawn chiggers, control them with anything that controls fleas. Besides, the A&M correspondent replied, the fire ants have eaten everything that moves including chiggers and ticks!

So, how do we prevent chiggers on ourselves? Some of the suggestions are not really useable, such as don't walk where chiggers congregate. Protective clothing made of tightly woven fabrics can be worn. Tuck your pants legs into boots or socks. Wear long sleeves. Spray yourself with an insect repellent containing DEET or permethrin. Many people swear by creams containing sulfur since this is an old armed forces remedy. When you come in the house, shower or bathe. Luckily, chiggers are temperature sensitive (supposedly) and do not bite at temperature extremes, such as below 60 degrees F. or hotter than 99 degrees F.

If you do get bitten, corticosteroid creams, antihistamines, and calamine lotion may offer some relief. I had always heard that putting clear nail polish on the bite would kill the chigger, but the AOCD site says that polish, rubbing alcohol, and bleach do not work because the chigger does not burrow into the skin. Sadly enough, it can take up to two weeks for the chigger site to be completely clear.

Sources:

Aggie-horticulture.tamu.edu

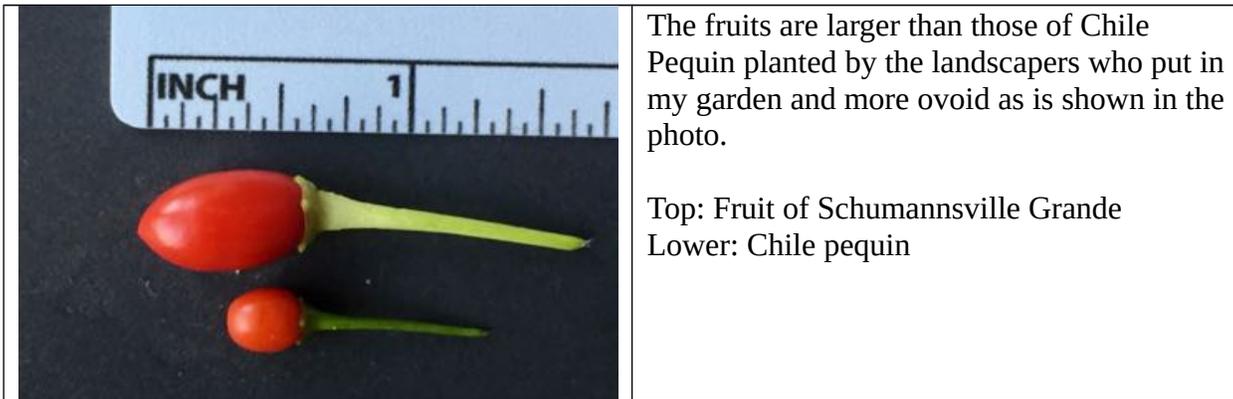
Aocd.org (American Osteopathic College of Dermatology)

Ca.uky.edu (University of Kentucky, Entomology Department)

THE GENUS CAPSICUM aka CHILE PEPPERS

By Francine Edson

Chiles had never been a subject of importance for me; the hottest chile I chose to eat was bell pepper. My interest changed when I saw a line of magnificent chile plants while John and I were working one fall at Lady Bird Johnson Wildflower Center. We were volunteering in the shade house where plants in pots were being housed to over winter. The leaves of dark green, gold, and yellow covered the well-rounded plants with circumferences of three feet. Oval fruits of green, orange, and red topped the plants. The label read “Chile Pequin Schumannsville Grande, *Capsicum annuum*.” Being a Guadalupe County resident from the olden days, I knew about Schumannsville on Farm Road 725 near New Braunfels, especially since my mother taught at the 2-room school there for 14 years in the 1920s and 30s. I also knew that Phillip Schulze who grew up in Schumannsville was Arboretum and Natural Areas manager at Lady Bird. I sought him out to obtain more information on the plants. He affirmed that those were his plants that he had named; seed were from the family farm at Schumannsville between FM 725 and the Guadalupe River. He explained that this *Capsicum annuum* was growing on the farm and was found by his grandfather who then saved and planted its seeds. The plants all came true to seed. Phillip gave me three small seedlings and remarked that they needed to be growing in the county where they came from. Schumannsville Grandes are now growing in my pollinator garden.



My interest was aroused in this group of plants about which I knew so little. Where did Schumannsville Grande fit in the chile group?

All chiles belong in the genus *Capsicum* native only to the Americas; the southernmost United States (Florida, Texas, and Arizona) are the northern limit of *Capsicum*'s range. The genus thrives in frost free areas. *Capsicum* is a perennial small shrub that can live 10 or more years in suitable conditions. Over 30 species in the genus have been identified, but only five of these have been domesticated. Domestication started at least 7,000 years ago. Since then, humans have selected and bred over 3,500 different kinds of chile peppers. New sorts appear at a rapid pace.

Capsicum was introduced to the rest of the world when Columbus took the pungent red berries back to Europe. Columbus thought they were pepper—evidence that he was in India—and called them red pepper. Chile spread quickly around the world as a poor man's spice since black pepper from India was affordable only to the rich.

Pungency (spiciness) is the defining characteristic of *Capsicum* as a food. As a defense mechanism, many chiles produce capsaicin as an irritant producing a burning sensation to animal tissue with which it comes into contact. Birds are immune to this effect, and all wild *Capsicum* species have small roundish fruits that are easy for birds to pick off with their beaks when the berries are ripe. The seeds go through the birds' digestive tracts where the digestive acids break down the seed coats, and the seeds become ready to germinate given the right growing conditions.

In 1912 American pharmacist, Wilbur Scoville, developed a scale for measuring the pungency of chiles. Pungency is recorded in Scoville Heat Units (SHU). His method was imprecise because he used human tasters. Today, human tasters are bypassed, and a method known as high-performance liquid chromatography is used and converted into SHUs. How hot a type of chile is varies depending on climate, soil, water, seed lineage, plant stress, and ripeness. Chiles from the same plant can also differ in spiciness. The following are some examples of pungency:

Pungency	SHU	Examples
Non pungent	0-700	Bell pepper (0)
Mildly pungent	700-3,000	Poblano pepper (1,000-2,500)
Moderately pungent	3,000-25,000	Jalapeno pepper (2,500-5,000)
Highly pungent	25,000-70,000	Tabasco pepper (30,000-50,000)
Very highly pungent	Above 80,000	Chiltepin pepper & Chile pequin pepper (50,000-100,000)

Habaneros are above 100,000 SHUs. Chiles bred for making law enforcement pepper spray are above 1,000,000. The hottest chile at this time is Pepper X with a score of 3,000,000+.

The five domesticated *Capsicum* species are as follows:

***Capsicum pubescens*:** Named *pubescens* for the hairs on its leaves, this chile species, found in the Andes of South America and Central American highlands, is relatively unknown outside this region. The fruits can be apple or pear shaped, flowers are purple, and seeds are black.

***Capsicum chinense*:** Habanero is the best known chile of this species. Native to Central America, Yucatan, and Caribbean Islands, *C. chinense* tend to be extremely hot, at the upper end of the Scoville Heat Scale.

***Capsicum frutescens*:** Tabasco is a member of this species, the red fruit being the ingredient in Tabasco sauce. *C. frutescens* still grows wild in Central and South America.

***Capsicum baccatum*:** An important domesticated species in South America, *C. baccatum* is called Aji there. A subspecies, *pendulum*, with fruits that hang down, has been cultivated into a variety of shapes and sizes.

***Capsicum annuum*:** *C. annuum* is the most common domesticated species. It has been suggested that domestication happened in central Mexico with *C. annuum* var. *glabriusculum* (also known as var. *aviculare*). The chiltepin, the Texas state native pepper, is the wild form of *glabriusculum*. Unlike other foods whose wild ancestors are looked upon as inferior, chiltepins are harvested and sold alongside the larger fruits domesticated from them. Some chiles bred from this wild chile species include bell, cayenne, jalapeno, poblano, New Mexican, Hungarian paprika, and Asian. Chile pequin, also a member of the species, has larger, more oblong fruit and lives in more humid conditions than chiltepin that likes its home hot and dry.

Even though New Mexico was not home to any species of wild *Capsicum*, chiles are a major agricultural crop in the state. New Mexico State University at Las Cruces has conducted research on *Capsicum* since 1888. In 1992 the international, non-profit Chile Pepper Institute was established there to assist in preserving *Capsicum* germplasm and archive chile information.

Back to my Chile Pequin Schumannsville Grande. For five years, I have propagated Schumannsville Grande seeds. Over several generations and dozens of plants, the form of the plant and fruit shape, size, and orientation remain similar to my original plants. Shumannsville Grande likely comes true to seed as Phillip Schulze told me.

I have four plants in 3-gallon pots for anyone who would like one.

Please email me at johnledson@gmail.com.



New Members-in-Training

Our Fall Training class has begun and we have a marvelous group of future Master Naturalists. Two classes have been completed and all of our speakers, so far, have presented virtually. We are so blessed to have three tech-savvy members who have implemented the virtual connections. A **BIG THANKS** to Michelle Darnell, Sandi Wheller and Mark de Kiewietz for managing so well our virtual presentations.

Class 3 will have in-person presenters and we will gladly welcome that format of presentation. The Schertz Senior Center is a great venue with A/V capabilities and a large room for social distancing.

Michelle and Mary Styblo organized a wonderful document introducing our students. However, I wasn't able to get all three pages of the PDF to insert into the newsletter. Looks like I need a lesson on that technique, Bruce Bebow!

I am sending it as a separate email with the attachment "Why Would Anyone Want to Become a Texas Master Naturalist?" Enjoy getting to know a bit about our Members-in-Training.

Membership News:

Congratulations to **David Benbow** Class of 2019, he has recently completed his required 40 volunteer hours and his 8 AT hours to receive his Initial Certification to become a Texas Master Naturalist!



Here are some of our other hard working Guadalupe Master Naturalists who have completed their hours for Recertification.



Tom Hardaway,
Craig Sagebiel,
Janet Magee,
and
Pam Turner



If you have any questions about recording your VMS time, Please contact, Michelle Darnell, mdarnelltx@gmail.com, or text 210.601.8957
Membership chairperson

NEXT NEWSLETTER

Please send announcements and news items for distribution in the newsletter to Marilyn Anderson, MarilynA@access4less.net.

Deadline for next issue – September 25 for the October issue.

<u>Officers:</u>	
President – Tom Hardway	tehardaway@yahoo.com
Vice-president – Jennifer Ehlers	ehlers@gvec.net
Secretary – Sharon Frels	sfrels1@gmail.com
Treasurer – John Edson	johnledson@gmail.com
<u>Committee Chairmen:</u>	
Program – Clara Mae Marcotte	rcm.marcotte@gmail.com
Training Class – Marilyn Anderson	MarilynA@access4less.net
Nature Education – Nancy Masterson	nsethermasterson@gmail.com
Citizen Science – Tom Hardway	tehardaway@yahoo.com
Advanced Training – Cinde Thomas-Jimenez	cthomas-jimenez@gbra.org
Communications – Michelle Darnell	mdsarnelltex@gmail.com
Membership – Michelle Darnell	mdsarnelltex@gmail.com
Fund Raising – Craig Sagebiel	prcraigsagebiel@yahoo.com
Hospitality – Mary Styblo	drstyblo@hotmail.com

<https://txmn.org/guadalupe/>



The Texas Master Naturalist program is sponsored by the Texas A&M AgriLife Extension Service and Texas Parks and Wildlife

