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Celebrating and sharing our experiences along "the roads" we take through nature.

Award Winning Newsletter of the El Camino Real Chapter
Milam County Texas Master Naturalist Fall 2015

What's the BUZZ? by Barbara Cromwell

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Did You Know?
What insect has a grandfather, but not a father?
See last page for the answer.

I Love Fireflies. This year I was so excited because we actually had some on our property. We haven't seen any in several years. I remember my children catching them and putting them in bottles so they could take them in their bedrooms to see them light up inside, always asking, "How do they do that?"

Well, finally there is an explanation. Scientists always knew that Firefly's abdomens contained oxygen, calcium, magnesium and another curious chemical called luciferin. These chemicals somehow created photons, or light, in the form of yellow, green, orange, and even blue flickers of light that danced across backyards on summer nights.

Until recently, the actual chemical reactions that produce the firefly's light have been a mystery. Thank goodness scientists like Bruce Branchini, at Connecticut College, like a good mystery.

"The way enzymes and proteins can convert chemical energy into light is a very basic phenomenon," he says, "and we wanted to know how that biochemical process worked."

In his research he found an extra oxygen electron that's responsible for these beetles' summertime glow. So often we have heard that, the Hummingbird should not be able to fly, but it does!!! Well according to

prior knowledge what the chemists found in the bodies of the Firefly should not allow it to glow, but they did.

Specifically, two of the ingredients mentioned above—oxygen and luciferin—do not react to each other in the way they would need to in order to produce light. What he found was that the oxygen that is part of a firefly's glow comes in a special form called a superoxide anion. This is an oxygen particle that comes with an extra electron.

This means that this molecule is able to cause a chemical reaction with the luciferin, like scientists have suspected.

He adds that these superoxide anions could be the way bioluminescence works across nature, from plankton to deep-sea fish.

Other scientists like Stephen Miller, a chemical biologist at the University of Massachusetts Medical School, studies luciferin and it's potential uses for human health.

Earlier this year, Miller was part of a team that is proving luciferin to be a useful tool in imaging human tumors and developing cancer fighting drugs. Who knows what will happen with these studies but now I can tell my grandchildren what I could not explain to my children about, "How do they do that?"



Sweet's Nature Shenanigans

By Sheri Sweet

You know - you're walking along between two trees and suddenly, without any warning whatsoever, you have something wrap itself across your face and around your head - something invisible, but you sure can feel it! It's stuck to you! You realize that you've walked into - you guessed it! - a SPIDER WEB! Oh, gross! And you flail around, wiping, pushing, rubbing until finally most of it is gone - hopefully the spider that built it wasn't on the web - or you have a whole additional set of problems to deal with!

I decided to do a little research on spider webs and how the spiders build these amazing works of art! And I also love



to try to take pictures of spider webs. They are rather elusive to cameras unless you are in just the right spot with the right lighting.

Spiders have glands on the tips of their abdomen, which are called "spinnerette glands". From these, they produce various kinds of silk from which

they build their webs. One type of silk is a non-sticky type for the safety line of the web. Another type of silk is sticky silk for trapping its prey, and the third type is fine silk, used to wrap its prey. Most spiders have three sets of spinnerette glands - one for each type of silk. Some spiders have only one set of spinnerettes and some have 4 types. Some spiders have the ability to create up to 8 types of silk during their lifetimes.

The silk produced by the spider consists of a large amount of protein, which uses a large amount of energy by the spider. Interestingly, the spider will consume its web after a few days and will thus recoup some of the protein it expended building it.

There are two sets of words used for webs: "spider webs" and "cobwebs". Generally, a "spider web" is a fresh, in-use web. A "cob web" is an old, dusty, abandoned web.

The spider web is an efficient method the spider uses to catch its prey. The spider starts building its web by producing a single, fine, adhesive thread length which floats in the

breeze until it catches on a distant branch. Once this is accomplished, the spider pulls this thread to tighten it. Then it crosses back and forth on this strand, creating new strands until it is strong enough to support the web.

From this base thread, a Y-shaped netting is created. Once these radials are constructed, more radials are added until the web is approximately 20 times the size of the spider.

After the radials are completed, the spider then builds a wide spiral of non-sticky thread so that it may move around on the web without being caught in it itself. The spider uses its own body as a measuring device for spacing of the openings in the web.

As the sticky spirals are spun, the spider eats the non-adhesive spirals as they are not needed any more.

Once the web is complete, the spider will wait at its edge with one foot on the web, waiting for something to collide with the web.

When it feels the vibration of the web, it knows something is caught in it.

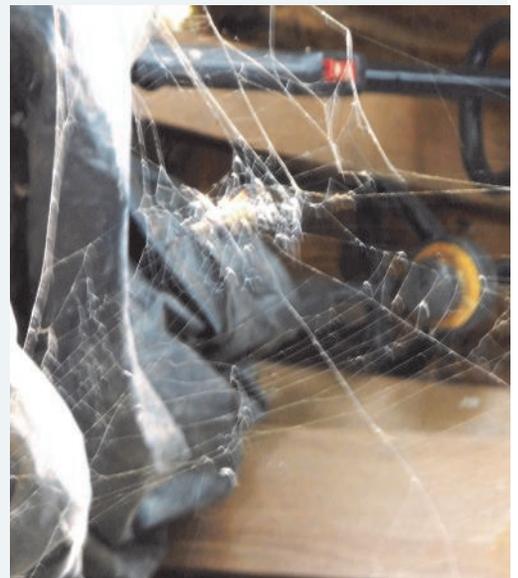
An interesting fact about spider webs is the fact that the tensile strength of a spider web is greater than the same weight of steel and has more elasticity than steel! Spider silk is being investigated for potential applications for bullet-proof vests and artificial tendons.

There are a number of different types of spider webs, including spiral orb webs, tangle webs, funnel webs, tubular webs, and sheet webs.

If you are interested, there are several very interesting videos on the Internet which depict speeded-up versions of spiders building their webs. You can Google "spider webs" to find some of these videos.

My source for this information was www.en.wikipedia.org/wiki/Spider_web.

The pictures are of a Golden Orb Spider's web in our old barn, as well as a Golden Orb Spider's cob web! Spider webs are really works of art!



Does Tropical Milkweed KILL Monarchs?

By Debbie Harris

Asclepias curassavica aka Tropical Milkweed (commonly called bloodflower, mexican butterfly weed, cotton bush and scarlet milkweed) has recently been given a bad wrap! Although it is not native, it is an easy growing milkweed that is hardy in central Texas and has proven to support the Monarchs entire life cycle. And it is very well liked by the Monarchs as well.

Some folks have asked, "is the Tropical Milkweed KILLING our Monarchs?" from comments they have heard recently. They have also expressed concerns about purchasing this fast growing milkweed because of such comments.

Here is why:

- Studies have found that the Tropical Milkweed is preferred by Monarchs vs other milkweeds.
- The OE (Ophryocystic elektroscirrha) spore is a protozoan parasite that is destructive in the Monarch and Queens reproductive system, and may build up during winter.
- Because the Tropical Milkweed is so easy to grow and maintain for the entire migration, some also believe it gives Monarchs a mixed message to linger and continue their life cycle and not return to Mexico.
- Although Native Milkweed is best to have around, it is a difficult plant to cultivate from seed. It is not easily found in commercial nurseries for purchase; remember it's a WEED and it is often found in pastures/fields that are often unmaintained. And to transplant a Native Milkweed isn't always an easy task either as it has a long tap root, and once a tap root is disturbed, it is likely to perish.

So what is the best solution? Per Edith Smith, a well-known Butterfly gardener in Florida, this sums it all up very well "Just Cut the Dang Stuff Down", especially NOW, in the fall. By doing so, you destroy or lessen the OE spore problem and the butterflies will go on their merry-migration way.

So please people, DO buy or grow that beautiful Tropical Milkweed to feed our Monarchs! Not only will your garden look beautiful from the vibrant color the Tropical Milkweed provides, you will continue to see those beautiful butterflies.

When we all help those beautiful little critters by providing milkweed, we will increase their population and reduce the possibility of being placed on the ESA list.



Bottom line is, it is up to us to make a difference, now, before it is too late.

--- A Footnote ---

At the recent TMN State Conference, I attended a session I found interesting. The speaker, Barbara Keller-Willy, shared information on Milkweed Cardenolide Values. Studies have shown that milkweed contains Cardenolide. This is the substance in the leaves that Monarchs and Queen larvae/ caterpillars need to survive.

Cardenolide values are measured per 1 gram of dry weight of leaves. For the frequently found milkweed for our area, here is the highest cardenolide value found in *Asclepias*:

- *Curassavica* (Tropical): 1421
- *Asperula* (Antelopehorn): 886
- *Virdis*: 95-433
- *Tuberosa* (Butterfly): 0.

(note: *Tuberosa* contains no Sap)

This might explain why Tropical milkweed is so popular!

For more information on this topic, read: Tropical Milkweed OK for Monarch Butterflies, "Just Cut the Dang Stuff Down" at <http://texasbutterflyranch.com/2015/04/30/tropical-milkweed-ok-for-monarch-butterflies-just-cut-the-dang-stuff-down/>



Sweet's Nature Shenanigans, part II

By Sheri Sweet

All the rain we've gotten has been great. And I've always remembered, growing up in Laredo, that after the rain comes the Rain Lilies! And sure enough, I've started seeing Rain Lilies around here - lots and lots of the pretty, white, very fragrant flowers blowing in the breezes. But WAIT! There is another flower blossoming in this area, too. They are a bright orangey-yellow and look just like the Rain Lilies - but they are this pretty yellow! I have NEVER seen yellow rain lilies! Wes pointed them out to me. We started watching and were finding small clumps of them around here. And then he came in and said that we had a small clump of them on our place! So, we loaded ourselves, the dog, a camera and two wildflower identification books and off we went in the Mule.

Sure enough, there they were - down between the pecan tree and the tank. We took pictures. But do you think I could find them in the two current wildflower ID books I took with



us? Nope! I examined the flowers - six sharp-pointed petals of orangey-yellow, but with red on the bottom side of the petals. Very pretty, but no way to ID them. We came back to the house and I put the two current books away. Then I pulled out my trusty old Roadside Flowers of Texas book from 1969 and looked for the Rain Lilies. Sure enough, there it was! A beautiful watercolor picture of the Rain Lily and the ATAMASCO-LILY! Exactly! Atamasco-Lily, *Zephyranthes texana* Hook, is a stemless herb with a coated subglobose bulb that is $\frac{3}{4}$ " in diameter.

There are 3 sepals and 3 petals each, which are alike. They are coppery yellow with deep red-orange or purple outside; about 1 inch long; and $\frac{1}{4}$ inch wide. The stamen filaments are joined to the throat of the tube of the flower.

The Atamasco Lily looks just like the Rain Lily except for its color and their nodding characteristic. These lilies are not very common - obviously, since I'd never even seen them before! They are found in sandy soil from Anderson, Montgomery and San Patricio Counties westward to McLennan and Bexar Counties. They bloom in late summer. There are two other species of Atamasco-Lily - one is found in the lower Rio Grande Valley and the other is found in the Trans-Pecos area.

I'm glad we noticed these little flowers! The research for this flower was interesting in that the current wildflower books do not even mention it at all! I was lucky that I had this older book that I've kept all these years!

Bibliography: Roadside Flower of Texas, paintings by Mary Motz Wills and text by Howard S. Irwin, University of Texas Press, Austin, Library



TMN 2015 State Conference Awards

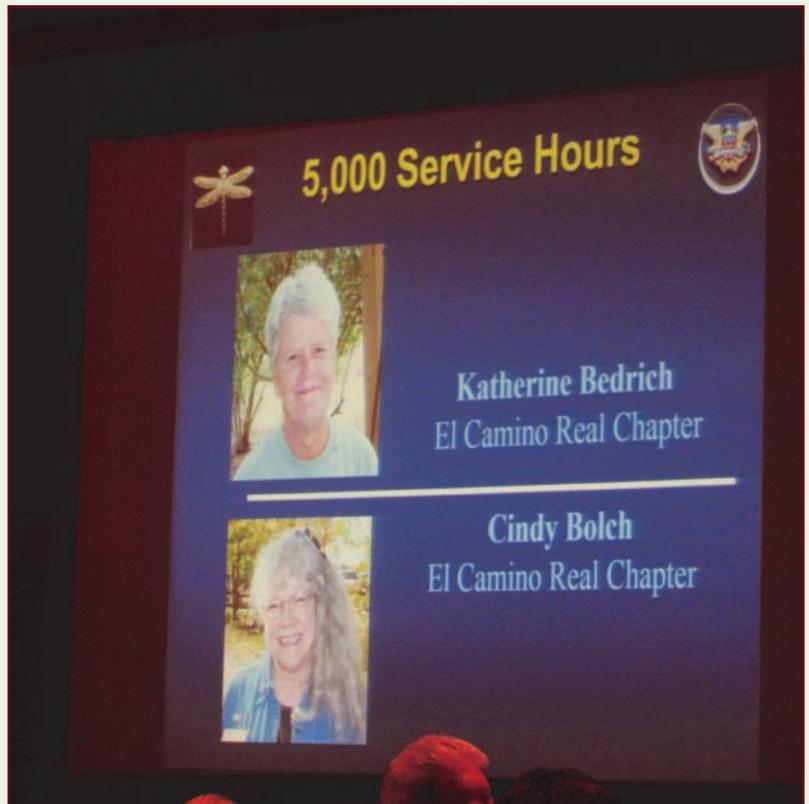
by Don Travis

For those of you who went to this year's Annual Texas Master Naturalist Conference at Horseshoe Bay Resort near Marble Falls, you know what a great conference this was. I think there were 15 members attending from our chapter, and over 450 in total.

There were many really good Advanced Training sessions, the food was really pretty good given such a large affair such as this, the hotel rooms were comfortable, there was a huge silent auction of hundreds of nature stuff, several chapter displays of their special projects, and it was mostly all inside while 8-12 inches of rain fell on folks back home in Milam County. Several outdoor events had to be cancelled or moved indoors but that's just the way things go sometimes.

Three El Camino Chapter members were formally recognized for milestone achievements during 2015, and one award for "Best Chapter Brochure" which we won based on popular voting by those in attendance.

Linda Jo Conn was recognized for the 1000 hour service milestone, Cindy Bolch for the President's Award 4000 hours and for the 5000 hour milestone, and Katherine Bedrich for the 5000 hour milestone. And yours truly accepted the award for the "Best Chapter Brochure" contest, although other members have contributed to it's content and style.



New 2016 Member Training Class

By Dorothy Mayer

Our 2016 new class training will start on Tuesday January 12, 2016 from 5-9pm at the Milano Methodist Church Fellowship Hall, and continue weekly through March. Barbara Cromwell and Dorothy Mayer will be co-directing the class training.

The 1st class will be our introductory class and led by Past President, Katherine Bedrich. Our chapter adviser, Tim Siegmund, TPWD and Floyd Ingram, Milam County AgriLife Agent, will be asked to come and meet the new class members. Additional subjects should be: wildscapes and urban design, entomology, native grasses, mammalogy, Texas Nature Trackers, botany, herpetology, ornithology, water conservation, climatology, man and nature, ecoregions, and a nature identification field trip to Somerville state park, and Waco wetlands. There will also be some Friday or Saturday fields trips.

In order to cover all the subjects, we are trying to offer 13 training classes. Further dates and speakers may be announced in the near future. Also, everyone was in agreement that the training classes will be counted as AT or Volunteer time for our current members that participate. Many of our current members will act as mentors to make our new trainees feel welcome and included in our chapter, and provide any assistance as needed.

2016 Class Curriculum (Draft level as of Oct 30 2015)

Tues. Jan. 12 5-9pm at UMCFH Milano "Introduction to the MN program and it's history" w/ECRC past president & certified TXMN Katherine Bedrich presenting

Tues. Jan. 19 5-9pm UMCFH "Water Conservation" w/ Johnnie Smith, TPWD Conservation Ed. Mgr. & Mike Conner, Certified TXMN

Tues. Jan. 26 5-9 UMCFH "Mammalogy" with the Partners for Fish & WL Program "(US Fish & Wildlife Service)"

*Sat. Feb 6 9am-1 pm field trip to Bryan "Botany" w/Dale Kruse Herbarium Director.

WED Feb 10 1-5PM UMCF "Entomology" w/ (Dr.) "Professor" Bob Baldrige presenting from Baylor University

*Sat. Feb. 20 (-1pm?) "Herpetology" Dr. Toby Hibbitts Location: TBA (This may be a field trip to Bryan)

Tues. Feb. 23 5-9pm UMCFH "Ornithology" Timothy Siegmund WL Private Lands Biologist and Chapter advisor

*Sat. Feb 27 9:30 am-1:30 pm Waco Wetlands Field Trip "Wetlands Ecology" w/ Wetlands mgr, Nora Schell & Dr. Robert Doyle from Baylor University

*Sat. Mar 5 9-1pm Field trip to Betsy Ross' property w/ Betsy leading a presentation on "Organic Farming & Soil Sus-

tainability"

Tues Mar 8 5-9pm UMCFH TX "Nature Trackers & I naturalist presentation" w/Cullen Hanks from TPWD

Sat. Mar 19 9am-1pm UMCFH TX "wildscapes and Urban Design" w/ Mark Klym from TPWD

Tues. Mar 22 5-9pm UMCFH "Climatology" w/Certified TXMN & past President, Barbara Cromwell

Tues. Mar 29 5-9pm UMCFH "Man & Nature" w/Certified TXMN & Chapter member, Rich Cromwell presenting

Graduation will be either on Sat. April 2 or Tues eve April 5. Location TBA

*'s denotes field trips

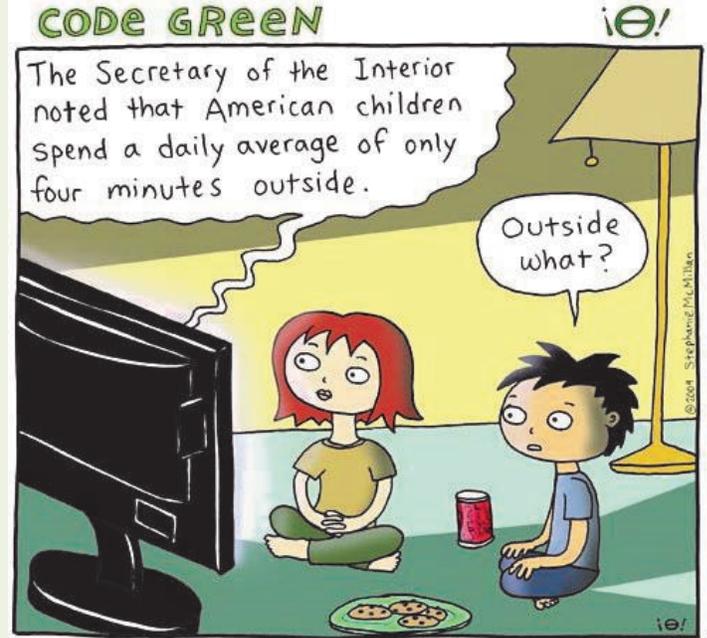
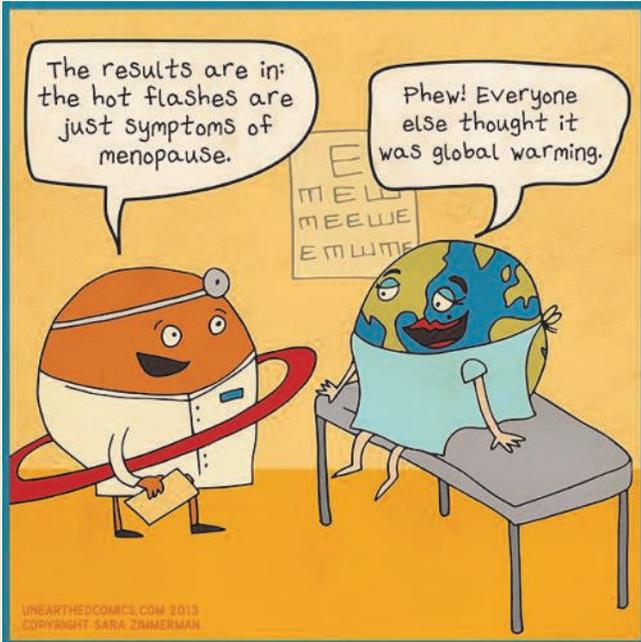
Please pass the word to anyone and everyone you know who may be interested. Sign up and downloadable registration information is available on our website at txmn.org/elcamino/how-to-join/.

You can also contact the AgriLife Extension Office at 100 East 1st street in Cameron, 254-697-7045, or one of the class leaders: Dorothy Mayer at 254-482-3235, or Barbara Cromwell at 512-697-4482.



Nature's Funny Side

By Don Travis



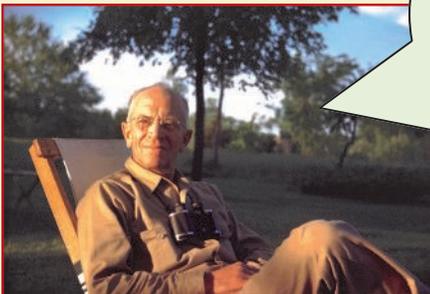
The Butterfly and the Bee, contributed by Dorothy Mayer:

Once upon a time, a handsome honeybee fell in love with a butterfly he met in a tulip tree. He said, "I love you madly and want to share your life. Let's fly away together, Will you be my wife?"

She shook her head in sorrow,

"No, no, no," cried she. "For I'm a monarch's daughter and you're just a son of a bee."

Aldo Leopold Says:



"Like winds and sunsets, wild things were taken for granted until progress began to do away with them. Now we face the question whether a still higher 'standard of living' is worth its cost in things natural, wild and free."

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Certifications, Etc. By Cindy Bolch

New since the Summer 2015 newsletter are in this color.

New Member 2014/15 Class Certifications: Darlene Anglen, Sheri Sweet, Wesley Sweet, Nancy Adcock, Clyde Adcock, Mini Pesl, Debbie Rolan and Kimberly Westbook

2015 Re-Certifications (Bluebonnet pin). Lucy Coward, Cindy Bolch, Don Travis, Dorothy Mayer, Katherine Bedrich, Linda Jo Conn, Debbie Harris, Donna Lewis, Ann Collins, Sheri Sweet, Wesley Sweet, Mini Pesl, Darlene Anglen, Barbara Cromwell, John Pruet, Sandra Dworaczyk, and **Joyce Conner**.



Highest Level of Lifetime-to-date Milestone Achievement Levels earned by current members as of October 2015 include:

5000 Hours—Katherine Bedrich, **Cindy Bolch**

4000 Hour Presidential Award—

2500 Hours—Don Travis, Ann Collins, Donna Lewis, and Debbi Harris.

1000 Hours—Paula Engelhardt, Sue Taylor, Lucy Coward, Dorothy Mayer, Phyllis Shuffield, Sandra Dworaczyk, Linda Jo Conn.

500 Hours—Anne Barr, Barbara Cromwell, John Pruet and **Sheri Sweet**

250 Hours—Lucile Estell, Shawn Walton, Vivian Dixon, Cindy McDaniels, Janice Johnson, Gary McDaniels, Kim Summers, Rusty Thomas, Cindy Travis, Sherry Colley, Kathy Lester, Wesley Sweet, Pam Neeley and **Darlene Anglen**.

Our October 2015 Year-to-Date and Total Accumulated hours for Advanced Training are: **842 and 6,450** respectively. Our October 2015 Year-to-Date and Total Accumulated hours for Volunteer Events are: **8,007 and 54,003** respectively.

Congratulations to All

Did You Know?

What insect has a grandfather but no father?



Honeybee drones (males) develop from unfertilized eggs, so they have no fathers. They have only one copy of each chromosome, unlike their sisters (mostly workers), which have two. Queens store sperm after mating, and can control the sex of their offspring, according to the needs of the colony, by allowing or not allowing the eggs to be fertilized. Unlike the female worker bee, drones do not have stingers and do not participate in nectar and pollen gathering. A drone's primary role is to mate with a fertile queen, which is done during flight. Drones are characterized by eyes that are twice the size of those of worker bees and queens, and a body size greater than that of worker bees, though usually smaller than the queen bee. Their abdomen is stouter than the abdomen of workers or queen.

Drones will die off or are ejected from the hive by the worker bees in late autumn, and do not reappear in the bee hive until late spring. Should a drone succeed in mating he soon dies because his penis and associated abdominal tissues are ripped from the drone's body after sexual intercourse. (AAHHHH!) Since drones come from a Queen bee, who did have a father and a mother, drones do have grandfathers. That's nice!