



Photo by Nathan Veatch

Table of Contents	
AT/Stewardship/Ed Outreach Opportunities	2
Prairie Ponderings	3
Wetland Wanderings	4
Heritage Book Study Group	4
Milkweeds and Monarchs	5
TexRAT	7
Guppies from Julie	7

Reflections Before Dawn by Diane Humes, President 2011

Early in the morning I sat outside looking for shooting stars - the eta Aquarids, dust from Halley's comet. My neighborhood was peaceful and quiet except for early birds singing and small chirpings and the disconcertingly loud roar of traffic - at 4:30 am! Although still night, the sky was disturbingly light - washed with white, but stars were visible. The Summer Triangle was bright overhead and I faced Scorpio and Sagittarius; in other words, I was staring straight into the heart of the Milky Way.

Reflecting on the pleasantness of the air temperature and (lack of) humidity, and that we have had no significant rainfall since January, I thought of the devastating drought of the 1950's that lasted for years. People sank wells to be independent of surface water. Did the subsequent subsidence of the land result from the drought? At least in part?? What will we do this time? How will we provide enough water for fish and shrimp and oysters and people?

Well, these are early-morning thoughts; I did see two meteors streak across the sky. The world is still here and the universe is doing its thing. Our chapter is doing well. Everyone is incredibly busy; this is the time of year for lots of school field trips, Camp Wild, Treasures of the Bay and graduations, such as our Spring 2011 Training class. Please, take a deep breath and remember to stop and watch the birds, smell the flowers, let the wind blow through your hair, relish the day.



Texas Master Naturalists helped with the National Ocean Sciences Bowl on April 29-May 1 at TAMUG. At left, Emily and Abby Morris. Above, Dottie Evans, Rebecca Smith, Julie Massey and Diane Humes.

Next Chapter Meeting
 June 2nd
 Carbide Park
 Backyard Habitats
 By
 Chris LaChance
 WaterSmart Coordinator
Bring a dish to share

Thank you to everyone for jobs well done and your many accomplishments; this chapter runs on the love and energy of all of us. Congratulations to all new (and "old") Master Naturalists!

June, July and August Activities

ADVANCED TRAINING OPPORTUNITIES

Chapter Meeting - June 2nd

Presenter: Chris LaChance, WaterSmart Coordinator
Backyard Habitats
6:30 Social, 7:00 Presentation, 8:00 business meeting
Carbide Park 1 Hour AT

Monarch Monitoring - June 23rd

Texas City Prairie Preserve
9:00 am - 12:00 noon 3 Hours AT
Cost: Free
25 maximum participants
Presenter: Vic Madamba, Project lead: Vic Madamba

August Sky - Thursday, July 28th

Walter Hall Park, League City
7:00 - 9:30 pm 2.5 Hours AT
Presenters: Diane Humes and Allan Treiman
Project Lead: Diane Humes
Registration: Emmeline Dodd txdodd@aol.com

Water Monitoring Workshop - Saturday August 13th

TCPP, bring your lunch
New and re-certification
9:00 am - 3:00 pm 5 Hours AT
Presenter: Mel Measeles
Project Lead: Frank Budny

Ongoing

Galveston Island State Park
Every Saturday- Beach Explorations
Every Sunday- Bay Explorations
10 am. Meet at the Welcome Center
Tours are 1 to 1 ½ hours long.
Prepare for sun and mosquitoes.
Bring water and family.

Heritage Book Study Group

First Monday of every month
Texas City Prairie Preserve
10am-Noon 2 hours AT
Contact: Elsie Smith (409)945-4731
We are currently reading:
The Book of Texas Bays by Jim Blackburn

STEWARDSHIP OPPORTUNITIES

Project of the Year:

Prairie and Wetland Restoration Horseshoe Marsh

The Project of the Year at Horseshoe Marsh will continue throughout the year. We are restoring island habitats ravaged by Hurricane Ike. If you can help please contact Tom Solomon crandtr@sbcglobal.net

TexRAT - June 20-23

Various Locations and Times
Assist TPWD, along with Texas A&M Galveston, University of Houston Clear Lake and the Houston Advanced Research Center, with a rapid assessment of the Galveston Bay watershed to identify native and non-native plants and animals using standard and atypical sampling gears

Ongoing Activities:

Tuesdays -

- Sheldon Lakes State Park, Contact: Tom Solomon crandtr@sbcglobal.net
- Texas City Prairie Preserve, Contact: Jim Duron wishkad@yahoo.com

Wednesdays - Wetland Restoration Team, Contact:

Marissa Sipocz m-sipocz@tamu.edu

Fridays - Prairie Friday, ABNC, 9 - Noon Contact: Tom

Solomon crandtr@sbcglobal.net

EDUCATION-OUTREACH VOLUNTEER OPPORTUNITIES

Bay & Island Adventures - Volunteers teach six in-class hands-on modules (water, Galveston Bay, wetlands, coastal prairies, birds, Gulf of Mexico) on a once a month basis in Dickinson and Galveston Schools. Presenters and helpers are needed for eleven 4th and 5th grade classes. Contact: Sara Snell snellsw@verizon.net.

Education and Outreach Committee - Lots of work to do and we can use your help developing a speakers bureau; responding to requests for exhibit booths, fieldtrip guides and presenters, planning Camp Wild and Treasures of the Bay; and developing a library of education-outreach materials. Contact Sara Snell snellsw@verizon.net.

Partner and Associate Programs - Many organizations sponsor guided walks and education programs or need volunteers to man their nature center. Go to www.gbamasternaturalist.org click on "Volunteer Opportunities," then click on "Partners, Sponsors and Associates" for the list, then click on their website for information and contact

Prairie Ponderings – Prairies are People by Dick Benoit

VOLUNTEERS

*Marybeth Arnold
 Dick Benoit
 Tom Betros
 Chris Boodley
 Laura Bradley
 Art Chapman
 Jay Cross
 Verva Densmore
 Billy Dunlop
 Jim Duron
 Victoria Fogg
 Jim Frantz
 Beth Frohne
 Gail Gawenis
 Liz Gimmler
 Doris Heard
 Diane Humes
 Anne Huysman
 Mark Kramer
 Chris LaChance
 Gib Larson
 Sandra Linton
 Vic Madamba
 Scott Manusov
 Julie Massey
 Sue McManamen
 Rob Moy
 Barb Nowakowski
 Tim O'Connell
 Ray Parker
 Sally Paulissen
 Bob Paxton
 Jerry Pels
 Sharon Pels
 Rose Anne Presley
 George Regmund
 Bebe Rizo
 Paul Shack
 Chatt Smith
 Sara Snell
 Tom Solomon
 Pat Turk
 Steve Upperman*

The Coastal Tallgrass Prairies have been impacted by people and will have to be restored by people. With less than 1 percent of these original prairies remaining because of people's intrusion, there is now an effort under way to understand the importance of those prairies and begin a process of restoration. One of our chapter's main stewardship projects has been to maintain and restore local prairies.

Sheldon Lake State Park has become a model of using early pre-agricultural photos to establish the land contours and vegetation of the area. Earth-shaping machinery was used to reshape the land, and plans have been made to reintroduce the vegetation to the wetland and prairie areas. The prairie-restoration team

includes about a dozen volunteers from a multi-chapter composition.

Armand Bayou Nature Center's Prairie Friday Team has grown in the past 10 years to over 20 participants, on a busy day, with a multitude of activities. The growth of working with school groups has been exponential.

Texas City Prairie Preserve also has grown each year and is currently drawing eight to 10 people each week, with twice that many when Project of the Month is scheduled. The chapter also is working with Houston Audubon in restoring the prairie on the Bolivar Peninsula and will again work with Galveston Island State Park in restoring some of its prairies affected by Hurricane Ike.

SPRINGTIME IN TEXAS



Photo by Diane Humes

Bluebonnets in full bloom along a highway in Brenham, TX.

Wetland Wanderings by Diane Humes



"Think globally, act locally."

The Hawizeh marsh is a surviving remnant of the wetland system in southern Iran and Iraq. For thousands of years it has nourished wildlife and plants galore and is home to the indigenous marsh people, the Ma'dan, who live in secluded villages of elaborate reed houses, often only reached by boat. The marsh originally encompassed 15,000 - 20,000 square kilometers of interconnecting lakes, mudflats, and wetlands and is thought to have been the Garden of Eden and the Ma'dan descended from ancient Sumerians.

In what has been labeled one of the world's worst environmental disasters, most (>90%) of the marshes dried up

from two causes: upstream diversion of water from the Tigris and Euphrates rivers in Syria and Turkey and deliberate drainage ordered by Saddam Hussein in 1991 to quell uprisings.

Restoration of the marshes began in 2003; now 58% of the marsh is re-flooded, an area the size of the Everglades. People and wildlife returned; experts prepared plans for further work and study. The October 2008 Ramsar Convention Conference of the Parties announced the Hawizeh Marsh a "Wetland of International Significance" and Iraq's first Ramsar site. The marsh is recommended as a site for a Peace Park between Iraq and Iran.

Simultaneous to Hawizeh Marsh's award of international conservation status, a two-year drought ensued and Iran began diverting water from the Karkheh River, jeopardizing restoration. Problems also remain with water and land pollution, ecosystem degradation, sanitation, and unexploded ordinance. It remains to be seen what the ultimate restoration outcome will be.

In our neck of the woods, work is proceeding with the wetland restoration at Sheldon Lake State Park. Wetlands have been re-created from former agricultural fields; land contour has been restored and native vegetation is being planted. Wildlife is definitely returning. In Sheldon Lake State Park all Texans will be able to see a snapshot of what this land formerly was like.

To join the Wetland Restoration Team on this project of local and international significance, come out any Wednesday. Contact: Diane Humes, treimanhumes@earthlink.net, 281-532-1063.



Heritage Book Study Group by Elsie Smith

The GBA TMN Heritage Book Study Group discussed the Upper Texas Coast as they completed the first section of *The Book of Texas Bays* by Jim Blackburn, an environmental attorney. The group will be discussing the Middle Texas Coast at the next meeting on June 6. The

group meets the first Monday of each month at Texas City Prairie Preserve from 10 am until noon. Two (2) hours of advanced training are earned at each meeting. For information, contact Elsie Smith at 409-945-4731.

Milkweeds and Monarchs – A Tangled Web of Life by Diane Humes

Charismatic microfauna - the title fits Monarch butterflies, those beloved brightly colored long distance flyers. Imperiled due to habitat loss on their wintering grounds and migration routes, their fates are tangled in a web of life with milkweed plants and a host of other species.

Milkweeds are primarily tropical plants, reaching their highest numbers in South America. The outstanding North American genus is *Asclepias*, named by Carl Linnaeus in 1753, of which 36 species are found in Texas, with probably sixteen or seventeen east of the Balcones Escarpment. Milkweed plants produce nectar for bees and other insects, are the larval food for various beetles, moths, and true bugs and the sole food sources for larvae of the Monarch Butterfly.

The milkweeds formerly were classified in their own family - Asclepiadaceae, now sub-family Asclepiadoideae - but recently have been grouped under the Dogbanes - Apocynaceae, which includes periwinkles (*Vinca*), oleanders (*Nerium*), and Blue Star (*Amsonia*). Many Milkweeds and Dogbanes share the trait of milky sap, containing latex and chemical compounds distasteful and toxic to herbivores. The latex concentration in these plants is too low for commercial rubber production, although it has been tried.

Milkweeds, as a group, are mostly perennial herbs. Leaves are simple and usually entire, opposite or whorled, rarely alternate. Flowers are complete and corolla parts are in multiples of 5. Flowers are specialized structures; each petal has a hood which may also have a horn as an internal appendage. The fruit is a **follicle** - a dry pod opening on one side - and each seed has a tuft of long silky hairs.



Pollen forms in the anther sacs as a pear-shaped waxy mass. Each anther sac is connected to its neighboring anther sac. The structure - think "saddle bags" - is called a **pollinium**

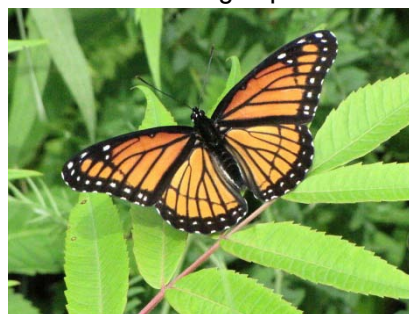
and is found only in milkweeds and orchids. Unique to milkweed flowers, the anthers are fused to the stigma during development; grooves form in the spaces between the anthers. When an insect alights to sip nectar at the flower's polished and slippery stigma, its leg is likely to slide down into a groove and snag a pollinium. If it manages to fly away to another plant, it will transfer the pollinium's pollen load to another flower and the tricky plant will have effected cross-pollination!



Milkweed sap - milky-white, as its name suggests - is toxic and may cause death to an animal consuming 10% of its body weight of any part of the plant. Sap contains bitter-tasting alkaloids and cardiac glycoside poisons which are harmful to

animals. Chemical warfare and physical deterrents such as hairy leaves are part of the arsenal used by milkweeds to deter herbivores, but it is a perpetual arms race. Recent studies suggest, however, that more recently evolved species of milkweeds have lower toxicity and exhibit faster growth, under higher CO₂ regimes; in other words, the new milkweed strategy may be to grow more quickly than the herbivores can eat! Only time will tell.

The arms race between plants and animals has other interesting evolutionary consequences. Probably the best-known butterfly in North America, or maybe the world, is the Monarch butterfly, *Danaus plexippus*, first described by Linnaeus. Its closest relative is the Southern Monarch, *D. erippus*, from south of the Amazon River. Probably the two species are recently evolved following separation about 2 million years ago when higher sea levels turned Amazon lowlands into a vast expanse of brackish swamp - not very good Monarch habitat! But, the Southern and Northern Monarch are also related to the Queen, *Danaus gilippus*, and Soldier, *Danaus eresimus*; all are milkweed butterflies and very similar in appearance. It is thought that their coloration serves as a warning to predators of their unpalatability.



All are Müllerian mimics of a fellow member of the family Nymphalidae, the Viceroy butterfly, *Limenitis*

Viceroy



Soldier

archippus, which also gives warning and also is poisonous, although Viceroy larvae eat willows and sequester salicylic acid. Müllerian mimicry describes how two or more species, all harmful, that may or may not be closely related and share one or more common predators, have come to mimic each other's warning signals.

Monarch, Southern, Queen and Soldier, larvae eat milkweed plants and nothing else. The female Monarch lays her eggs on the undersides of milkweed leaves, the young caterpillars hatch and spend about two weeks munching on milkweeds before the chrysalis and then adult stages. The larvae ingest cardiac glycosides from the plants, without ill effect, and become toxic or at least distasteful to bird and mammal predators.



Southern

are immune to it. Orioles and jays have learned to eat only the thoracic muscles and abdominal contents which contain less poison than the rest of the body. Some mice are able to withstand large doses of the poison. Over time adult Monarchs become less poisonous and more vulnerable to predation.

Monarch Butterflies are best known for their migratory lifestyles. In North America, they travel north each spring and south starting in August. No individual butterfly makes the entire journey; the lifespan of a butterfly is less than two months. Females lay eggs and the next

generation continues the journey. It takes three or four generations to complete a round trip migration. Populations of Monarchs overwinter in the mountains of Mexico and California. Overwintering individuals may



Queen

live seven months.

Monarch butterflies are strong flyers - one of the few insects capable of trans-oceanic flight. They were noticed in Australia and New Zealand in the

19th century and are found in the Azores, Canary Islands, the Solomons, Ceylon and India, and sometimes western Europe. Monarchs live in Bermuda, since gardening with milkweed plants has become popular, and Hawaii. These populations do not migrate.

Monarch populations on Oahu exhibit a white morph that is actually increasing to over 10% of Monarchs. This is thought to be a consequence of predation by two introduced species of bird: the Whiskered bulbul (*Pycnonotus jocosus*) and Red-vented bulbul (*Pycnonotus cafer*). Introduced in the 1960's, these birds



are now the most common insectivorous birds in Hawaii and the only ones that eat Monarchs. They eat larvae, pupae, and resting adults, but don't seem to prey on flying adults, especially white morphs. Bulbuls may be tolerant of glycosides; Hawaiian Monarchs have lower levels of toxic chemicals. Will white morphs continue to increase? Stay tuned. Red-vented bulbuls are now also residing in Houston.

This brief history of Monarchs, milkweeds, and associates, is a snapshot of the web of life on Earth. The more we learn, the more there is to know.

TexRAT submitted by Debbie Howard

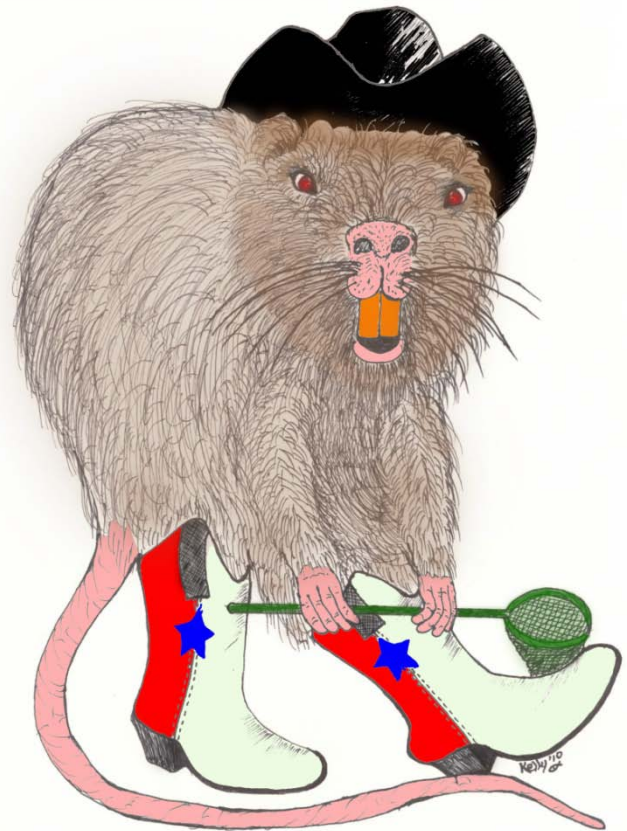
Texas Parks and Wildlife Department is looking to the Texas Master Naturalists for help. June 20 - 23, TPWD along with Texas A&M Galveston, University of Houston Clear Lake and the Houston Advanced Research Center are conducting a rapid assessment of the Galveston Bay watershed to identify native and non-native plants and animals using standard and atypical sampling gears. This team - the Texas Rapid Assessment Team (TexRAT) is composed of scientists and volunteers from state agencies, universities and NGOs. TexRAT would like TMN members to consider participating in one of several venues:

Are you good at identifying local plants and animals and would you be willing to serve on a field sampling team during the event?

Would you be willing to work in the lab and help with data management (keeping everyone organized or entering data in Excel)?

Do you like weather watching? Then we need you in the lab to keep a real time eye on weather radar to warn our TexRAT teams of any impending storms.

If you can work any one or all of these days from the A&M Galveston campus then we need your help. Participants will get a T-shirt and the chance to meet other local experts. If you can help, please contact Debbie Howard at 281 534-0100 to get an application.



Guppies from Julie - National Ocean Sciences Bowl Competition

Many thanks to the Galveston Bay Area Chapter and the volunteers who made the National Ocean Sciences Bowl (NOSB) Finals Competition a great success! Teams of students from across the nation came to Galveston Island in late April for the four day competition.

The Galveston Bay Area Master Naturalists sponsored one of the Friday field trips. In 14 years of NOSB competitions, you sponsored the first service project, Galveston Island State Park dune restoration! Twenty five students and 12 adults planted 960 dune plants at the park! In addition, they got to experience the beach and Bay with Master Naturalists!





Improving Lives. Improving Texas.

Texas AgriLife Extension Service programs serve people of all ages regardless of socioeconomic level, race, color, sex, religion, disability, or national origin. The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Court of Texas cooperating.

The kids on the field trip to GISP came from New York, Wisconsin, South Carolina, Virginia, New Hampshire and California - to name a few states. They had a great time getting wet, seining and learning about turtle patrols! Later, many told me that it was the best NOSB field trip ever! One adult from Massachusetts said the field trip and dune restoration were experiences she would remember for the rest of her life!

During the competition, Master Naturalists served as rules judges, moderators, time keepers, score keepers, runners and hosts to the 250 visitors!

Two lasting donations were made to our community as a result of Master Naturalists and NOSB. Bay Tec Containers in Bacliff donated a 275 gallon water tote to GISP for this and future restoration projects! Also, Apache Ecological Services donated 8000 dune plants for the NOSB service project! And the chapter itself, in the spirit of "food, fun and friendship," donated fruit snacks for the event!

Thanks again for sharing your Master Naturalist hospitality, knowledge, talents and time with the students participating in NOSB 2011!

The Midden

This newsletter is published by **Galveston Bay Area Chapter - Texas Master Naturalists.**

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Dickinson, TX 77539-6831

For comments on this issue or to suggest content for future issues, please contact **Nathan Veatch** at **281-480-6985** or by e-mail at nveatch@swbell.net

The Midden Deadline For the June Issue

July 5

If you have Advanced Training or Volunteer Opportunities, please submit information to Diane Humes treimanhumes@earthlink.net

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