Wildlife Diversity Program 4200 Smith School Road, Austin, Texas 78744 www.tpwd.state.tx.us/tracker

The Texas Nature Tracker



Catching Up!

TEXAS

NATURE

TRACKERS

MARSHA E. MAY, TNT COORDINATOR, TPWD

Rain! Heavenly rain! What a difference a year makes. It has been a tough year at TPWD, but Texas Nature Trackers is still here. We are so grateful to all of our volunteers and the incredible dedication that they have for all of the watch programs. **Thank you! Thank you!**

We are introducing two new watch programs to Texas Nature Trackers.

TEXAS BUMBLEBEE WATCH

Michael Warriner, TPWD invertebrate biologist, initiated the new Texas Bumblebee Watch and you can read more about this exciting opportunity in his article on the right. Also like this program on facebook at: https://www.facebook.com/ texasbumblebees?ref=ts

WINTER WHOOPER WATCH

Winter Whooper Watch is the brainchild of TPWD biologist, Lee Ann Linam. During the winter of 2011/2012, two families of whooping cranes (and later a third family) spent the winter at Granger Lake, miles inland of their usual wintering grounds associated with coastal areas in and around Aransas National Wildlife Refuge. Numerous birders observed these majestic birds and submitted their observations to TPWD. What is going



Texas Bumblebee Watch

MICHAEL WARRINER, TPWD

Pollination is one of the most fundamental processes sustaining agricultural production and natural ecosystems. In North America, most plant pollination is carried out by bees. Of all the insects that visit flowers, from beetles, butterflies, and wasps, bees are the most important pollinators.

The European honeybee is our most well-known species, first brought to North America around 380 years ago by European colonists. Although non-native honeybees tend to garner the most public attention, there are actually several hundred bee species that are native to Texas. Species that were here long before the honeybee and that are essential to the state's diverse native plant communities.

Native bee pollination is critical to the maintenance of Texas diverse ecosystems. Many of the berries, nuts, and seeds consumed by birds, mammals, and other insects are the result of bee pollination of native woody and herbaceous plants. Along with their substantial ecological contributions, native bees have proven to be more efficient and effective pollinators of several agricultural crops than honeybees. The pollination service provided to U.S. agriculture by native bees has been estimated in excess of \$3 billion annually.

Bumblebees are among the most familiar native Texas bees. Their black and yellow bodies are easy to recognize as they buzz from flower to flower. Like honeybees, bumblebees are social insects that live in colonies comprised of a queen and her daughter workers. Bumblebees, in particular, are more effective pollinators than honeybees of such crops as blueberries, eggplant, peppers, tomatoes, and watermelon.

TEXAS

Executive Director Carter P. Smith

Editor, Texas Nature Tracker Marsha E. May

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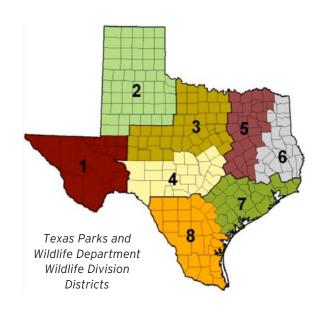


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Catching Up, continued

to happen next year and the year after? We would all sure like to know. So, that is why Texas Nature Trackers is launching a Winter Whooper Watch program to solicit the help of volunteers in tracking locations, movements, and behaviors of wintering whooping cranes outside their traditional wintering grounds. Look for more information on this new watch program on the Texas Nature Tracker website at: www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_nature_trackers/



BIOLOGICAL INVENTORY TEAMS

Last year I wrote about a new project called Biological Assessment Teams, which has now evolved into Biological Inventory Teams (BIT). We are slowly moving along with this project. A Biological Inventory Team (BIT) is a group of enthusiastic and knowledgeable experts (from groups such as Texas Master Naturalists; native plant, herp and bird societies; and other nature organizations) who are able to assist landowners and TPWD biologists by conducting

surveys of plants and animals on private property. These surveys will assist landowners by compiling species lists for their property, collect census data for their wildlife tax valuations, and inform the TPWD Texas Natural Diversity Database (TXNDD). The vision for this plan is to establish volunteer teams in each TPWD Wildlife Division District to meet these needs. BIT members will be coordinated and trained by TPWD staff to survey and document rare and important resources. Biological Inventory Teams will be able to offer assistance directly to Wildlife District staff or private landowners.

Biological Inventory Team Project Goals

- 1. Provide assistance to landowners in conducting surveys of plants and animals on private property
- Provide a volunteer base of knowledgeable experts in each TPWD Wildlife District to help conduct surveys
- Increase information available about rare species in the Texas Natural Diversity Database (TXNDD)

Survey/Inventory Teams

- Plants and Rare Communities
- Birds
- Invertebrates
- Herps (Amphibians and Reptiles)

Future Survey/Inventory Teams

- Freshwater Aquatics
- Mammals



Texas Bumblebee Watch

CONTINUED FROM PAGE 1

Despite their critical roles in agriculture and natural ecosystems, bumblebees have gone virtually unstudied in Texas. The last published review of species in the state was in 1913, nearly 100 years ago. There is a real need to evaluate the status of these insects in our state to assess how their populations are faring and if conservation actions are needed. A first step in this process is simply recording where species are today and if they still occur in the same places they did years ago.

I have established a website (www.texasbumblebees.com) with the goal of enlisting citizen "bumble-watchers" in evaluating the state's bumblebee fauna. At www.texasbumblebees.com you will find tips on how to identify bumblebees and information on the nine species that occur in the state. Contributing to this process can be as simple as casually snapping images of bumblebees on flowers, recording the date and location, and submitting the image online. Visit www.texasbumblebees.com to learn more about this endeavor.



Catching Up, continued

Each team will be led by a specialist volunteer that coordinates other knowledgeable volunteers. These team leads will coordinate scheduling, paperwork, and reporting with appropriate TPWD staff.

We currently have a Herp BIT established in East Texas (District #5) led by **Mark Pyle**. In Central Texas (District #4) we have a Herp BIT led by **Jeffrey Holmes**, a Bird BIT led by **Patrick Garnett**, a Plant BIT led by **Joan Mukherjee**, and an Invertebrate BIT led by **Rehanon Pampell**. I would like to thank all of the members of these teams, and especially the team leaders, for stepping up to help with this important project.

North Texas is our next target (District 3). We plan to establish teams in that district in the spring of 2013.

If you are interested in being a team member or if you are a landowner and would like to have a survey conducted on your property, please contact me at: marsha.may@tpwd.state.tx.us.

TEXAS NATURE TRACKER PARTNERSHIP

We are proud to introduce our new Texas Amphibian Watch Partner: **Cypress Basin Master Naturalist Chapter** in Jefferson, TX. Since the partnership effort began in 2004, we have seen a tremendous increase in volunteer involvement in all of our Texas Nature Tracker Watch programs. TNT partnerships involve an effective relationship between groups such as Texas Master Naturalist Chapters, nature centers and zoos with Texas Nature Tracker biologists through working together to promote and provide local monitoring events for Texas Amphibian Watch, Texas Mussel Watch, Texas Horned Lizard Watch and Texas Black-tailed Prairie Dog Watch. For more information on these partnership opportunities, please contact me at marsha.may@tpwd.state.tx.us.

FACEBOOK

Join us on Facebook! Go to https://www.facebook.com/texasnaturetrackers

TEXAS NATURE TRACKER PARTNERSHIP WORKSHOP

On May 18-19, 2012, Big Country Master Naturalist Chapter hosted a Texas Nature Tracker Partnership Workshop at Abilene State Park. The following three articles are from their Chapter newsletter, *The Prickly Pear*.

Texas Amphibian Watch

DAVID HERD, BIG COUNTRY MASTER NATURALIST

One dark and moonless night at Buffalo Wallow, Abilene State Park, a crowd of wanderers, flashlights in hand, quietly worked their way down a dark path on their journey to find the very elusive and mysterious animal called an amphibian (known to most as a frog). The group, lighting the path with various lighting devises known as flashlights were becoming more anxious as they got closer and closer to their destination. Anticipation, which had been growing to a fever pitch (or maybe the wanderers were simply hot), abated as they made their way over the logs and the wooden bridge. Quiet fell over the crowd and in silence they listened. The night air was still except for the rustle of the treetops and tall grasses swaying in the evening breeze.

All of a sudden the silence was broken by the sound of (for those of you who weren't there) waaaaait for it – waaaait for it – the sound of CASSADIAS, better known by the masses as cicadas. After a few anxious moments another reverberation inserted itself; the sound of two marbles (also known as Blanchard's Cricket Frog). In a few moments

Horned Lizard Watch Training

JIMMY SHIPP, BIG COUNTRY MASTER NATURALIST

Big Country Master Naturalists recently received training on the Horned Lizard Watch program, in conjunction with training for two other Texas Parks and Wildlife Department Nature Watch programs – the Amphibian Watch and the Mussel Watch. The class was well attended with about 12 folks, including three individuals from out of the area. Texas Parks and Wildlife Department wildlife biologists Lee Ann Linam and Marsha May were already planning on visiting us to present the two other programs, and at almost the last minute they agreed to also include the training on the horned lizards.

Lee Ann began the presentation with an overview of the three species of horned lizards found in Texas and their respective ranges. She also discussed their habitat and diet and the usual temperatures when they are active and can most likely be found during a watch. She also discussed management guidelines as a means to create a habitat conducive to the horned lizards. Finally, she presented information on how to conduct a horned lizard survey and the concert was joined by the sound of a screaming baby (Woodhouse's Toad) and then the terrifying sound of a cricket on steroids (The Great Plains Narrow-mouthed toad).

Our instructors from Texas Parks and Wildlife were very knowledgeable. We would agree that we all learned lots of stuff.

It appears the attendees are all fired up to start putting into practice what they learned. Watch for more to come.

For information on amphibians and mussels visit this great Texas website: www.tpwd.state.tx.us/huntwild/wild/ wildlife_diversity/texas_nature_trackers. Another great site for exploring amphibians is: www.herpsoftexas.org.

A big thank you goes out to the ladies who fixed wonderful snacks and meals: Marianne, Jan, Linda, and Okie. The food was outstanding.

she reviewed the instructions for completing the site survey data form, the landowner access request form.

After a break, we went outside to perform a mock horned lizard watch and Lee Ann and Marsha both showed us how to use some of the tools provided for

recording the environment immediately around a "found" horned lizard and recording that information as a sighting on the site survey data form.

In all, we had another fun, interesting and informative training session with arguably the cutest critter in the Texas Nature Tracker Watch series.



Texas Nature Trackers: Mussel Watch Program

AMY McCULLOUGH, BIG COUNTRY MASTER NATURALIST

On Saturday, May 19, 2012, our Big Country TMN Chapter sponsored a Mussel Watch training program, part of the Texas Parks and Wildlife Nature Trackers program. We had a great turn-out for the class, including a few that came in from out of town. It was a great, informative class, and we now have several enthusiastic chapter members that are ready to find locations and start tracking Texas mussels!

The class began with an introduction to the Texas Nature Trackers program and an introduction to Texas mussels. We learned that Texas has more than 50 species of mussels in its lakes and rivers. Unfortunately, the populations are rapidly declining, and several species are rare or threatened. Also, we have a problem with invasive species moving into the state, especially the zebra mussel. The state needs help from volunteers like our group to monitor the mussel populations in many areas and help determine distribution of species and the presence of exotics.

Part two of the classroom training covered the life cycle of mussels and structure and identification. Mussels are good indicator species, because they require clean water to thrive. Mussels have a fascinating reproductive cycle, spending the early stage of life attached to a specific fish as a parasite. Many mussels have evolved some interesting ways to attract the specific species of fish to them to attach their glochidia, or mussel young. Adult mussels can sometimes live 20 to 100 years or more, and some of them can grow shells that are quite large.

Before our field trip to hunt for mussels, we went through a mussel identification lab exer-

cise. We were given 14 different mussel

shells and an identification guide, and we all went to work trying to "guess the mussel." It proved to be a challenging exercise at times because some of the species looked a lot alike. Finally, we went out to the shore of Lake Abilene to do our own mussel hunt. We searched for about 20 minutes and collected as many shells as we could find, excluding the exotic Asian clams. We sorted the shells by species and shell condition, and recorded our find on the Mussel Watch data sheet. We found three species of mussels in our search of the Lake Abilene area. Everyone who attended the workshop will get added to a scientific collecting license, which will allow us to continue to collect shells and record data on our own for the Mussel Watch Program.

Texas Amphibian Watchers Brave the Drought

LEE ANN LINAM, TPWD

2011 wasn't a good year to be a frog. Extreme drought limited the activities of anurans and anuran-watchers around the state. Still, there were some dedicated amphibian monitors. Some highlights from 2011 include:

- Data forms were submitted to TAW by 19 volunteer teams, bringing the total number of formal participants to 93.
- Data were submitted from 12 counties.
- Data were submitted on 18 frog and toad species and on 11 bird species.

Green treefrogs, Gulf Coast toads, and cricket frogs were the "Big Three" once again, being reported from 20, 16, and 13 sites, respectively.

Travis County and Harris County had the greatest participation, with three sites being monitored in each county. The Capital Area Texas Master Naturalist Chapter, whose work is featured in this newsletter, adopted three different sites– accumulating over 725 volunteer hours at one site! Youth-based frog clubs at Farmersville Intermediate School and the Dallas Zoo are also creating great field-based learning opportunities centered around amphibian monitoring. Be sure to check out their stories in the newsletter as well!

Houston Toads Impacted by Bastrop Fire

Hundreds of defenders, including more than 140 TPWD employees comprising 55 certified wildland firefighters, law enforcement staff, and Incident Command personnel, together with firefighting partners from all over the country, battled the fiery monster, which eventually lost strength but wasn't 100 percent controlled until October 10 following a long-awaited rain shower. The historic structures and about 250 acres of the park were spared with the assistance of heavy equipment and resources that were on loan from commercial donors.

Because 96 percent of the park was affected by fire in some capacity, Bastrop State Park has been drastically altered. The unique Lost Pines ecosystem containing the southwestern-most cluster of loblolly pines will take decades to recover. Park staff is assessing impacts to natural resources, including the endangered Houston toads, whose main remaining stronghold has been the sandy soils of Bastrop County's Lost Pines.

> Bastrop Fire Means More Toad Troubles – Texas Parks and Wildlife YouTube Video: www.youtube.com/watch?v=CFQGh4YWMTY

The smoke may be gone but the Bastrop fires of Labor Day weekend are still a smoldering concern for biologists. They're keeping tabs on the Houston Toad. And with only an estimated 2,000 left in Texas, this endangered species is facing its next challenge as the drought continues. More on Houston toads at www.houstonzoo.org/HoustonToad/





2nd - 5th Graders "Hop" into Amphibian Watch Club!

MARCY WHITED, FARMERSVILLE INTERMEDIATE SCHOOL

"Cricket frogs, and green treefrogs, and bullfrogs - oh my!"

At Southlake, on the outskirts of quaint, historically rich Farmersville, Texas (northeast of Dallas), the cricket frogs sing lead vocals. The green treefrogs chant a "honky-tonk" back-up while an occasional bullfrog croons a deep bass harmony. The Amphibian Watch Club of Farmersville Intermediate School composed of 2nd- through 5th-graders, their parents, a few teachers and the principal; discovered and currently monitors the choruses of this unique ensemble.

In December of 2010, Farmersville Intermediate School (FIS) introduced the extracurricular club and in February of 2011, about 20 kids "leapt" into action. The group follows the guidelines set forth by Texas Parks and Wildlife's, "Texas Amphibian Watch Monitoring Packet" to complete a monthly Nocturnal Call Count. In December of 2011, the club submitted their first report to the Texas Parks and Wildlife, with aspirations of becoming real herpetologists.

"Let's give 'em something to 'croak' about!" The Amphibian Watch participants are not only learning to be good amphibian stewards, they are learning how to collect and record valuable data. Upon arrival at each call count, the kids immediately engage by selecting the tool of their choice to measure and record the evening's data. Some kids encourage their parents to arrive early so they get the "jump" on other participants and choose their favorite instrument, the pool thermometer. They love the opportunity to launch it into the lake and reel in the water temperature. Many of the second year veteran members have taken the role of mentor. They allow the newer, "younger," members the opportunity to collect data and they record the measurements on the data sheet. They are "frogtastic!"

As the sponsoring teacher, I not only love the learning avenues provided by the Amphibian Watch Club, I am enthused by the "family" involvement. We have families that attend during the summer months when their "Intermediate School" student is at camp. It's crazy! At our Nocturnal Call Count on June 12, I polled several students on their favorite thing about Amphibian Watch and it was a toss up. Their favorites were: "listening to the frogs" and "s'mores." During the summer months we stay late and do s'mores after the call count.

If you would like more information about our program feel free to contact me:

Marcy Whited, Farmersville Intermediate School Science Lab Teacher mwhited@farmersvilleisd.net

You can also keep "track" of our Amphibian Watch Club at: https://sites.google.com/site/sciencextras/







Frogs Are Calling, Are You Listening?

JESSIE CROWLEY, DALLAS ZOO

Members of the Dallas Zoo Frog Club sure are! Established in 2011 by Amphibian Keeper, Jessica Crowley and Education coordinator, Lucy Hale, Frog Club is a citizen science program for kids 8 and up and their parents. Club members undergo extensive TPWD Amphibian Watch training and work alongside Dallas Zoo staff to record what native frog and toad species inhabit River Legacy Park in Arlington as well as other nature parks in the DFW area. So far it has been a very productive season for frogs, despite the drought last year. Armed with a local field guide, headlamps and knowledge of local frog calls, participants explore prime amphibian habitat and record what they see and hear.



SOUTHERN LEOPARD FROG

© JESSICA CROWLEY

Frog Club members meet twice a month from April through August at River Legacy Park and monitor a nearby wet meadow and adjacent forest that is often flooded. One of the first species to come on the scene was the Southern Leopard Frog (*Lithobates sphenocephalus*). We have come across this species at several stages of development at our site this year. Volunteers were fascinated by the discovery of froglets that had yet to absorb their tails completely. Other species we have encountered include the Rio Grande Chirping Frog (*Eleutherodactylus cystignathoides*), Gulf Coast Toad (*Incilius valliceps*), Cricket Frog (*Acris crepitans*), Green Treefrog (*Hyla cinerea*) and the Spotted Chorus Frog (*Pseudacris clarkii*).

While identifying the amphibians at our site is the main focus of our meetings, it is also important to understand their role in the ecosystem. Members are encouraged to inquire about all aspects of their environment, from the insects frogs eat to the wetlands they live in. The DZ's invertebrate specialist, Tim Brys, makes himself available each meeting to help collect insects and share his knowledge about them with the group. During one meeting in June, members split into teams and were asked to participate in a photo scavenger hunt challenge. Each team was required to take photos of specific things in the habitat we are monitoring. For example, members were asked to take a picture of something a frog might eat. This activity allows volunteers to be creative and it was interesting to see how each team was able to capture the habitat we are studying in their photos.

To help engage volunteers throughout the year, a website (www.frogclubdz.wix.com/ribbit) was designed for members to access which provides them with meeting information, DFW frog calls and field guide as well as photos taken from our monitoring sessions. Programs like Frog Club provide local communities with the opportunity learn more about and appreciate the natural world around them.





Texas Mussel Watch

MARSHA MAY, TPWD

Texas Mussel Symposium

Texas Parks and Wildlife Department and several mussel researchers organized the first annual Texas Freshwater Mussel Symposium for anyone involved or interested in Texas mussel research on Friday, March 16, 2012. The goal of this symposium was to share ongoing mussel research and discuss important issues. Over 50 people attended this symposium with 12 biologists presenting their research. At the symposium participants discussed creating a Texas mollusk society. There will more discussion on this new society at the second annual Texas Freshwater Mussel Symposium scheduled to be held in San Marcos on Friday, March 15, 2013. If you are interested in attending the symposium in San Marcos or would like to receive a copy of the abstracts from the 2012 symposium, please email me at marsha.may@tpwd.state.tx.us.



New Texas Mussel Watch Data Sheet

With five species added to the Federal Candidate list (Golden Orb, Texas Pimpleback, Smooth Pimpleback, Texas Fawnsfoot and Texas Fatmucket), the TPWD Texas Natural Diversity Database (www.tpwd.state.tx.us/huntwild/wild/ wildlife_diversity/txndd/) is in need of current data on these and other Texas mussels that TPWD tracks. I worked with their biologists and revised our Texas Mussel Watch data sheet so that the data that we collect can easily be incorporated into this database. A fillable PDF of this new form can be found on the Texas Mussel Watch webpage (www.tpwd.state.tx.us/huntwild/wild/ wildlife_diversity/texas_nature_trackers/mussel/).

Texas Mussel Watch volunteers are amazing!

2010/2011 was a challenging year for freshwater mussels in Texas. The summer of 2011 found most of the state in the grip of a devastating drought. A record number of Texas Mussel Watch volunteers – 65 folks – participated in surveying Texas mussels and contributed their data. This number doesn't even include all of AI Bartel's students from Camp Olympia and Neil Ford's students at the University of Texas at Tyler. During this monitoring season, these amazing volunteers collected data on 33 Texas freshwater mussels (unionids) and 25 of those species were live. Forty-four sites were monitored for mussels in 28 Texas counties within 14 major drainage basins.

The highlight of this monitoring season was the discovery of a very recently dead mussel thought to be extinct, the False Spike (*Quadrula mitchelli*), by Dr. Charles Randklev and his team from Texas A&M Institute of Renewable Natural Resources in the San Saba River. Other state threatened species found live or recently dead during this monitoring season were: sandbank pocketbook (*Lampsilis satura*), golden orb (*Quadrula aurea*), smooth pimpleback (*Quadrula houstonensis*), Texas heelsplitter (*Potamilus amphichaenus*) and Texas pigtoe (*Fusconaia askewi*).

We at TPWD would like to especially thank the following volunteers for their years of dedication to Texas Mussel Watch

Mike McKay - 9 years Penny Miller - 7 years Al Bartell - 6 years Annette Jones - 6 years Janet Wallace - 5 years Bob Boensch - 4 years Neil Ford - 4 years Kathy McCormick - 4 years

Thank You, Mussel Watch Volunteers!

2010-2011 Texas Mussel Watch Volunteers

John Adkins Mara Alexander AI Bartell and students Katherine Bedrich Kate Bell Beth Bendik Lisa Benton Henry Bing Robert Boensch **Bethany Brown Stephanie Burgess** Andy Butler David Buzan Stan Chapman **Duncan Charlton** Mary Coats David Cowan Jalyn Cummings **Reggie Diaz** Paul Dorman Alex Duncan Kim Elson Sue Fischer Neil Ford's students Seth Griffin James Guthrie

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Connie Roddy Paul Schnitman Anne Semrau Larry Snyder **Charrish Stevens** Kim Summers Sue Tavlor AJ Vale Janet Wallace Jessica Ward Michael Warriner Mike Weeks Liz Wells Camp Olympia City of Austin Lower Colorado **River Authority** San Antonio River Authority Texas State Technical College Breckenridge University of Texas at Tyler Lower Colorado River Authority sponsored Texas Mussel ID Class, Austin Spring Creek Greenway Nature Center TX Mussel Watch Workshop Trinity River Audubon Center Mussel Watch Workshop

Texas Nature Tracker Partners

Big Thicket National Preserve/ The Nature Conservancy

Capital Area Master Naturalist Chapter

El Camino Real Master Naturalist Chapter

Heart of Texas Master Naturalist Chapter Lost Pines Master Naturalist Chapter Rolling Plains Master Naturalist Chapter



Students Contribute to Mussel Watch 2011

DUSTIN JENSON, STUDENT, TSTC – BRECKENRIDGE, TX

The summer semester at Texas State Technical College in Breckenridge is unlike any other, at least for students working toward a degree in Environmental Science Technology. It's during this semester that a small group of students enrolled in Environmental Biology is presented with a unique challenge: to take a part in the Texas Parks and Wildlife Department's annual Mussel Watch program.

Watching Mussels? At first, it seemed like an activity that was about as exciting as watching paint dry. What do these little critters do anyway? Don't they just lie around in the mud? Not particularly thrilling, considering our part of the state was experiencing one of the hottest, driest summers on record and, after all, the project would require us to spend many hours outdoors!

Again, that was our feeling ... at first. But we were interested to learn how important the mussel population is to our area. Mike McKay, Environmental Science Program Chair at TSTC, explains that the mussel population can give a clear "snapshot" of the health of a particular water source.

"[Mussels] are an indicator species. If you're concerned about water quality in this part of the state, an indicator species tells us when there is a problem with the water," McKay says. "We need to be monitoring our water supply any way we can."

We were excited to get started, especially after realizing we would be spending our time up to our knees in the cool, refreshing waters of our local water holes. By the second week of classes, Bethany Brown, Seth Griffin, Reggie Diaz and I found ourselves doing "the stingray shuffle" in the murky waters of Hubbard Creek Reservoir, scanning the banks for our little bivalve buddies.

Spotting our first mussel was quite exciting – a giant floater (*Pyganodon grandis*). He had burrowed himself about an inch into the muddy bank of the lake in order to feed. However, it was clear to us that the water level was rapidly receding due to the 100-plus-degree West Texas heat, and soon, he would be in desperate need of deeper water. Moving him away several feet out into the water, we began to spot more floaters. Then, some Asian clams (*Corbicula fluminea*), and even a few southern mapleleafs (*Quadrula apiculata*). We continued to count dozens of healthy individuals for several more hours, but it wasn't long before the toll taken on these species by the ongoing drought became apparent. In almost every place we looked, dozens



of shells littered the shoreline, a sign that the water level is receding faster than the mussels can travel to find cooler water.

Drought, we discovered, is just one of the many problems facing the state's mussel population. Pollution, rising salinity levels, and warmer-than-average water temperatures, are all affecting the livelihood of these species. That's why McKay feels that it's important to get his students involved in the Texas Mussel Watch each year.

"It's important to be able to contribute to the efforts of an organization such as Texas Parks and Wildlife," he says, adding that the program helps to bridge the gap between what is learned in the classroom and what is actually happening in the environmental arena in our area.

"I would encourage my students and others to continue to contribute to the efforts of this volunteer program."

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Zebra Mussels Found in Lake Ray Roberts Boaters urged to continue to clean, drain and dry

MIKE COX, TPWD

Three years after the discovery that zebra mussels had established themselves in Lake Texoma, the destructive invasive species has been confirmed in Lake Ray Roberts north of Denton. This is only the second lake in Texas found to have zebra mussels, and the first in the Trinity River basin.

"Unfortunately, from an environmental and economic standpoint, this is very bad news," says Texas Parks and Wildlife Department Executive Director Carter Smith. "For a host of reasons the implications of this discovery are substantial to Texas waters and their future use and management. We intend to continue working with our partners to do everything reasonably possible to try and prevent the further spread of this harmful invasive species."

Smith emphasized that the discovery underscores the importance of boaters helping to prevent the spread of zebra mussels, which can be unknowingly spread when boats and trailers are moved from lake to lake. TPWD and a coalition of partners has a public education campaign underway in North Texas encouraging lake users to clean, drain and dry their boats, trailers and gear. An instructional video and other tips on how to prevent the spread are available at www.texasinvasives.org.

Originally from the Balkans, Poland and the former Soviet Union, zebra mussels found their way to the Americas in the 1980s via ballast water of a ship. The small invaders were first found in 1988 in Lake St. Clair, Mich., and are currently known to have infested 29 states and more than 600 lakes or reservoirs in the United States.

Zebra mussels can have economic and recreational impacts in Texas reservoirs. They can clog public-water intake pipes, harm boats and motors left in infested waters by covering boat hulls and clogging water-cooling systems, annoy boat-dock owners by completely covering anything left under water and can make water recreation hazardous because of their razor-sharp edges. From the environmental perspective, zebra mussels are filter feeders, which mean they compete with baitfish such as shad for available forage. Any impact on baitfish in turn can affect their predators – game fish such as bass, striped bass and catfish. Zebra mussels are also very harmful to native mussel populations because they will colonize on their shells and essentially suffocate them. The latest discovery came following the DNA analysis of water samples collected from 14 North Texas reservoirs. While 12 of the samples proved negative, zebra mussel DNA was confirmed in the Lake Ray Roberts and Lake Texoma samples. The Texoma results were expected, but the Ray Roberts results were very concerning.

The Texas Nature Tracker

Following receipt of those results, TPWD fisheries biologists conducted a survey of the lake and confirmed the presence of small zebra mussels in several different locations on the lake and immediately below the dam.

"This is the first confirmed reservoir on the Trinity River Basin to have an established population of zebra mussels," explained Brian VanZee, TPWD's regional Inland Fisheries director. "The ones that have been found are only 1/8 to 1/4 of an inch in size, so that means they were likely spawned earlier this year."

TPWD does not know exactly when or how the zebra mussels managed to reach Lake Ray Roberts, a 29,350acre impoundment that sees heavy recreational use.

"More than likely, it was a boat that operated in Lake Texoma or some other lake infested with zebra mussels and then was used in Lake Ray Roberts without first being cleaned, drained and dried," says Gary Saul, TPWD Inland Fisheries Division Director. "In reality, we'll probably never know."

In the late summer of 2010 TPWD tried without success to chemically eradicate zebra mussels in a creek which feeds into the Trinity River system in North Texas.

Unfortunately, no magic bullet has been found that will eliminate the bivalves once they have established themselves in a body of water.

However, the spread of zebra mussels can be slowed by making sure that boats that operate in zebra musselinfested waters are not used in any other body of water until they have been cleaned, drained and dried. In addition, TPWD has recently adopted rules regarding the transfer of zebra mussel larvae in water from Lake Texoma and Lavon. To comply with those rules, boaters and anglers need to drain all water from their boats (including live wells) before leaving those lakes.

For two years, TPWD and a coalition of partners have been reaching out to boaters in North Texas to help educate them about the importance of taking action to slow the spread of zebra mussels. These partners include: North Texas Municipal Water District, Tarrant Regional Water District, Trinity River Authority, City of Dallas Water Utilities Department, Sabine River Authority, Canadian River Municipal Water Authority, San Jacinto River Authority, Angelina and Neches River Authority, Brazos River Authority and Lady Bird Johnson Wildflower Center.

Saul said TPWD will be looking at expanding current regulations dealing with clean, drain and dry rules to prevent the transfer of zebra mussel larvae to other lakes.



"With this somber news, I hope Texas boaters will always remember to "Clean, Drain, Dry" their boats, trailers and gear because all it takes is one instance of not properly cleaning to introduce this highly invasive and unwelcome species to a water body in Texas," Smith said.

> Anyone wishing to receive a supply of informational brochures, wallet cards or posters about

zebra mussels to distribute to boaters around Lake Ray Roberts or Lake Texoma, please contact marketing@tpwd.state.tx.us.

More information on the web:

- www.tpwd.state.tx.us/newsmedia/releases/news_ roundup/zebra_mussels/
- www.tpwd.state.tx.us/newsmedia/news_ images/?g=zebra_mussels
- www.texasinvasives.org

Real Life Science at the Outdoor Education Center

AL BARTELL, HOUSTON INDEPENDENT SCHOOL DISTRICT

The heat this summer has affected us all, but students attending the Outdoor Education Center/Olympia (OEC) are collecting valuable data on the effects of drought on Lake Livingston's mussel population. The level of the lake has dropped almost five feet, killing thousands of freshwater mussels. Students attending the OEC have been collecting the shells of mussels, identifying them and sending the results to the Texas Parks and Wildlife Department's Mussel Watch program. Students have been submitting this real world data annually since 1999.

Mussel populations are a good indicator of the quality of the water that supplies much of Houston's needs via Lake Livingston. Keeping a watch on these populations is instrumental to monitoring the water that is so important in our daily lives. But the true value of this data comes when we look back six years to Hurricane Rita in 2005. The storm damaged the structure of the Livingston dam and water was let out to a level almost identical to the current level.

According to HISD teacher, AI Bartell, the mussel population was decimated. "In 2005, we found thousands of dead specimens; I really doubted we would ever see any significant numbers of mussels in this part of the lake again. But last year, students started finding live adult mussels along the lake shore." Mussel larvae are parasitic on fish and are transported on their gills to new areas of the lake.

"Although this current loss of life is tragic, it shows just how quickly and completely the populations have recovered." Bartell adds, "The numbers of shells we are collecting is similar to the numbers after Rita. Without this valuable student data this wonderful recovery would have gone undocumented." There is no doubt that the lake will rise again, and in a few years the mussels will return.



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Texas Horned Lizard Watchers Pull Together

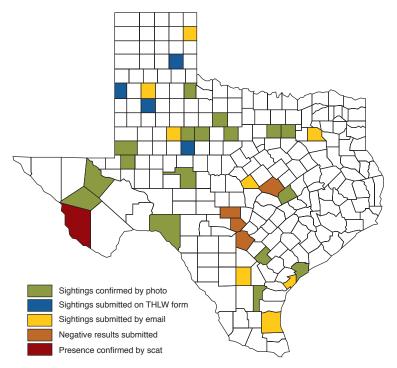
LEE ANN LINAM, TPWD

Several volunteer groups "came together" in 2011 working as teams to accomplish more for Texas Horned Lizard Watch. The Tierra Grande Texas Master Naturalists submitted data from several Trans-Pecos sites, including a transect in Presidio County that will allow them to assess the effects of the 2011 wildfires. The Horned Lizard Conservation Society and Dallas Zoo conducted surveys in Fisher County, and HLCS and Texas Master Naturalist volunteers assisted TPWD and the Kenedy Horned Toad Club with surveys in Karnes County. El Camino Real Texas Master Naturalists continued to assist TCU with DNA research in Milam County, and Big Country TMN were active for a second year in Jones County. Texas State Technical College students were also successful in their annual summer survey efforts in Stephens County.

Overall, Texas Horned Lizard Watch data were submitted from 37 counties in 2011. Three volunteers conducted transects, 18 volunteers adopted sites, and one volunteer collected DNA data. Sixteen of those volunteers were successful in finding horned lizards, while one other reported the presence of horned lizard scat. A total of 21 email reports were also received. Ten of those reports documented horned lizards with photographs.

Twelve new volunteers participated in 2011, increasing the total number of Texas Horned Lizard Watch volunteers to 236. Ed and Linda Allen contributed data for their 15th year! Linn and Beth Brady reached their five-year milestone, and junior volunteers Austin and Ashlyn Lowe also participated for their fifth year. Ashlyn's survey efforts were recognized in her local Andrews County newspaper, as she encountered a total of 38 horned lizards this year, including 18 young hatchling horned lizards!

LOCATIONS OF HORNED LIZARD MONITORING AND OBSERVATIONS IN 2011





MARK KLYM, TPWD

Everybody loves hummingbirds. Their amazing aerobatics, feisty nature and seemingly endless energy just seem to draw our attention, and their dazzling color display is simply amazing. Texas scientists have been tracking hummingbirds for 16 years, but they need your help. Why not help science while enjoying a favorite pass time?

The Texas Hummingbird Roundup offers three ways to participate. The traditional way was to order a Hummingbird Roundup kit by mailing \$6.00 to the address at the end of this article.

For this donation, you receive a kit that includes the survey forms, information on maintaining hummingbird feeders, a quick reference guide to hummingbirds, and a packet of "Lady in Red Sage" or "Tropical Sage" (*Salvia coccinea*), one of the hummingbirds favorite plants in Texas. Keep track of your survey kit because when you send it back in January, if there are at least 5 data points on it (not hard at all in Texas), we will send you a pin of one of our Texas hummingbirds.

Some people want the kit in their hand right now, so they can download the forms from the web at www.tpwd.state. tx.us/huntwild/wild/wildlife_diversity/texas_nature_ trackers/hummingbird_roundup/survey/. By going this route you do not get the salvia seed or the quick reference guide to hummingbirds, but you do still hold on to the forms for a year and send them back in January.

If you do not want to try to keep track of a piece of paper for a year, you can send an email to mark.klym@tpwd. state.tx.us and ask for the electronic data submission forms for the hummingbird roundup. These forms are sent as fillable PDFs, one that has to be filled out once a year and sent back, the other that is filled out weekly and sent in.

So, there is a way for everyone to participate in the Texas Hummingbird Roundup.

For more information, contact:

mark.klym@tpwd.state.tx.us

Texas Hummingbird Roundup 4200 Smith School Road, Austin, TX 78744

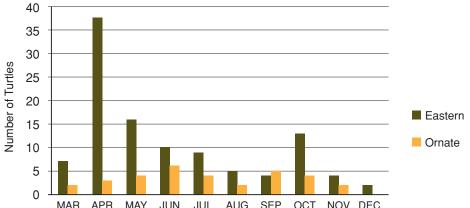
Drought Slows Down Turtles in 2011

© ELVEDA KRUSE

Box turtle sightings suffered like everyone else in last year's drought. In 2011, 90 volunteers only produced 147 sightings (down from 200-300 per year in the past), including 108 Eastern Box Turtles, 32 Ornate Box Turtles, and five of undetermined species. Once again, sighting of young box turtles in the O- to 2-inch size range were very rare – again emphasizing our need to better understand if and where reproduction is taking place.



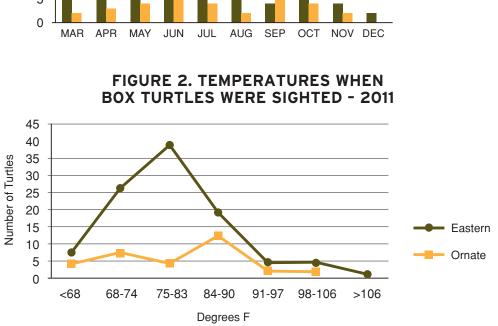
FIGURE 1. BOX TURTLES SIGHTED PER MONTH - 2011



Turtles were sighted from May through December, with a large peak of sightings for Easterns in April (35% of all Eastern sightings) and another slight peak in the fall. Ornates were more evenly distributed throughout the warm months (Fig. 1). Easterns were most likely to be reported when temperatures were in the upper 70s and low 80s, while Ornates tended to be reported at slightly higher temperatures (Fig. 2).

The Pineywoods ecoregion produced the most sightings for each species, followed by a substantial number of Easterns sighted in the Blackland Prairies and the Post Oak Savannah. Harris County had the highest number of sightings for each species, with Grayson County also contributing a large number of Eastern sightings. Turtles were reported most often from deciduous woodland and paved roads, with residential and parkland being the most common land use.

> A special thanks to Elveda Kruse, who provided 17 of the 147 sightings!



LEE ANN LINAM, TPWD



No Tarpon Drought Here

ART MORRIS, FISHERY OUTREACH SPECIALIST, COASTAL FISHERIES DIVISION, TPWD

In Texas, when it rains it pours. While the tarpon drought started off slow for the Tarpon Observation Network (TON) it caught up quickly in July. Nine observations have been submitted so far this summer and the season has just begun. While the typical "jumped one at the jetties" dominates the entries, and this year is no different, two entries really stand out. One was submitted from angler fishing in Espiritu Santo Bay near Port O'Connor who jumped a >6' tarpon (got three jumps out of it before it broke off). While a rare "swimming" observation was submitted from a diver some 50 miles offshore Port Aransas and got a photo of it! Both are interesting in that we seldom encounter big mature tarpon inshore like that. And while we believe they spawn and spend time in deeper offshore waters, these types of occurrences are hardly ever documented. Nevertheless, that is not to take away anything from the career trip four anglers made to the north Port Mansfield jetties, who over three days jumped 24 and landed one. It's been a hot summer so far for tarpon!

Since going live in May 2009, the TON has had 53 submittals representing 396 fish from Sabine Pass to the Brazos Santiago jetties and points inland. The program hopes to use volunteer observations to help answer some questions on where, when and at what size do tarpon occur in Texas waters and/or if they use Texas waters year-round. Tagging studies have shown that lower Texas coast adult and sub-adults venture south, while upper coast tarpon tend to venture east towards Florida for the winter. However, little data exists on if juveniles overwinter along the Texas coast. There have been some indicators from the TON that they do indeed spend winters in select nursery areas. For example, in January 2011, five juveniles were found dead after a short freeze event in a water drainage canal in Aransas Pass. Then in November 2011, well up the Guadalupe River delta, several juvenile tarpon (6"-12") were observed and later verified by castnet, possibly indicating an overwintering area for young tarpon.

So far, the TON has lived up to expectations that it could contribute to the collective knowledge about tarpon in Texas waters and tarpon anglers can provide that information at little to no effort or cost. With more eyes on the water to assist tarpon researchers learn more about the "silver king" they can make more educated decisions about tarpon management in the future.

To learn more about tarpon and submit an observation, go to www.tpwd.state.tx.us/tarpon.

Jay Gardner holds up a nice tarpon caught and released from the Port Mansfield jetties on July 14, 2012.

COURTESY ERIC OZOLINSE OF EXTREMECOAST.COM

Remembering Two Herp-Monitoring Heroes

Texas Nature Trackers would like to dedicate this issue of our newsletter to the memories of Andy Price and Steve Campbell.

ANDY PRICE

Andrew Hoyt (Andy) Price, Ph.D., served as the TPWD Wildlife Diversity herpetologist from 1986 through 2008. Trained in zoology at the University of Florida and New Mexico State University, with work experience at the Carnegie Museum of Natural History, Andy was a highly respected researcher in the field of herpetology, contributing to and editing several professional journals. However, Andy also recognized the value of an engaged and informed public. He was the author of TPWD's popular book on venomous snakes and recently co-authored *The Reptiles and Amphibians of New Mexico*.

Andy served as a resource and encourager to Texas Nature Trackers as we began to recognize the value of citizen scientists in monitoring reptiles and amphibians. He helped guide a status survey for the Texas Horned Lizard (published with Wendy Donaldson and Jack Morse in *The Texas Journal of Science* in 1994) that provided the inspiration for Texas Horned Lizard Watch. He organized a statewide meeting on amphibian decline in 1998 that led to the development of Texas Amphibian Watch. He introduced potential volunteers to the joys of box turtle watching by recounting his own childhood experiences with the species (*Texas Nature Tracker* Newsletter 2007). Andy also wrote the background sections for the original Texas Amphibian Watch, Texas Horned Lizard Watch, and Texas Box Turtle Survey monitoring materials and his voice introduces amphibian watchers to the calls of Texas frogs and toads in our official TAW audio CD. Despite his own research load, Andy was always ready to share advice with us in his own wry manner. Even after his retirement in 2008, Andy helped promote Texas Nature Trackers by inviting us to give guest presentations at Southwestern University, where he was an assistant professor of biology.

On January 16, 2012, Andy lost a six-year battle with multiple myeloma, but, to the very end, he was researching and writing about herps and encouraging those of us trying to share the conservation story for these fascinating creatures. His contributions will live on, but his knowledge, courage and friendship will be missed.



STEPHEN CAMPBELL



Steve Campbell, North Texas Aquatic Education Specialist for TPWD, passed away suddenly on July 14, 2012. Steve, who also had served as a zoo educator in Victoria and Waco, a museum educator at his beloved Strecker Museum, and as a reference librarian in Waco, before coming to TPWD in 1996, will always be remembered for his enthusiasm in sharing the natural world with others, especially with children. An avid amateur herpetologist, he co-founded the Dallas-Fort Worth Herpetological Society in 1999. He was a regular speaker on snakes and reptiles to Texas Master Naturalist chapters in Waco and the Metroplex and wrote many articles for TPWD newsletters and the Cross Timbers Herpetologist. Steve was also a big supporter of Texas Nature Trackers reptile and amphibian monitoring projects, inviting us to share presentations with the DFW Herp Society and encouraging its members to share data with TNT. In fact, he initiated contact between TPWD and DFW Herp Society co-founder, Michael Smith, that led to the development of the Texas Box Turtle Survey in 2005, as well as regulations to limit commercial harvest of turtles throughout the state.

Everyone who met Steve left with a smile at his creative interpretive techniques and an increased enthusiasm for conservation. He was a true naturalist and a true educator – a friend of animals and of people. His legacy, though cut short, will continue to inspire all those who crossed his path.

Master Naturalist Program Seeks Applicants

MARSHA MAY, TPWD

The Texas Master Naturalist program, with 44 chapters located across the state, aims to develop a corps of wellinformed citizen volunteers who educate their communities about the management of natural resources. The main qualification needed to become a Certified Texas Master Naturalist is an interest in learning and playing an active part in conservation. Volunteers will receive a minimum of 40 hours of training from educators and specialists from places such as universities, natural resource agencies, nature centers and museums. Training topics include interpretation and management of natural resources, ecological concepts, ecoregions in Texas and natural systems management. Volunteers are expected to give 40 hours of service a year in community education, demonstration and habitat enhancement projects. They are also expected to pursue a minimum of eight hours of advance training in areas of personal interest.

Texas Parks and Wildlife Department and Texas AgriLife Extension co-sponsor the Texas Master Naturalist Program. Texas Master Naturalist chapters will be offering volunteer training during the fall 2012 and spring 2013.

For more information about existing chapters or forming a new chapter, contact Michelle Haggerty, Texas Master Naturalist Program Coordinator, 309 Sidney Baker South, Kerrville, TX 78028. Call (830) 896-2504 or email: mhaggerty@ag.tamu.edu. Complete information about the Texas Master Naturalist program is available at: http://txmn.org.



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