A Message From President Kristine Rivers

I would like to remind everyone that we have a special, off-site chapter meeting planned for July 11 at the Brazosport Planetarium at 400 College Boulevard in Clute. Judi James, Director of the Planetarium, will present a program on Mars. Please plan on arriving around 9:15 a.m. for social time before the meeting.

If you attended the May meeting, you may remember that we announced plans for the COT 2019 Bonus AT Day, “A Little R&R (Research and Resource Management).” Part I will focus on Scientific Research Projects, including citizen science projects and more formal research studies; and Part II will focus on Land and Species Management. A perfect example of these types of topics was the advanced training provided on June 29 about the Cactus Moth (Cactoblastis cactorum), an invasive species that has been the subject of a monitoring program for over ten years here in Texas. During that time, no moths were caught in any of the lure traps designed to attract male moths, and it was thought that the species had not yet spread to our state. However, our very observant Ruby Lewis remembered the information from a training session given over a decade ago and recently discovered an infestation right in her own yard. It stands to reason that this indicates a larger problem here in our area, which is why the Texas A&M AgriLIFE Extension office responded quickly by scheduling the recent training session. Great work, Ruby!

John Boettiger will be giving us an update at the July chapter meeting on another citizen science / species management program in which several of our members are currently participating: Monitoring for the American Eel (Anguilla rostrata). We received an email from Stephen Curtis, the Texas Parks & Wildlife Aquatic Biologist who heads the project, expressing his excitement that the first eel had been caught in one of the Sabine-Neches area eel mops. Although it was not an American Eel—he believes it was a Speckled Worm Eel (Myrophis punctatus)—it confirmed that the eel mops are effective and have the potential to attract and capture the target species. See Page 3 of this newsletter for a photo of the eel and a brief write-up from Stephen.

These examples reinforce the fact that as Texas Master Naturalists we provide important and much-appreciated support to Texas Parks & Wildlife, Texas A&M AgriLIFE, and our other partners. It makes me very proud of the work we do, and I hope you recognize our impact and feel pride in our efforts also.

Keep up the amazing work!

Kristine Rivers is the president of the Cradle of Texas Chapter. She can be reached at rivers@tmn-cot.org.

QUINTANA BEACH COUNTY PARK NATURE CAMP,
July 16-19, 9 a.m. to noon. Contact Mike Mullenweg to volunteer mikem@Brazoria-county.com
Texas Master Naturalist Program—Cradle of Texas Chapter

General Meeting and Advanced Training

Wednesday, July 11, 2018

BASF Planetarium

at The Center for the Arts and Sciences

400 College Drive, Clute, TX 77531

9:15 AM – 9:45 AM

Fun and Fellowship

Snack Team: Ed Johnson, Anna King, Ann Lange, Jo Myers, George Valadez

9:45 AM – 10:15 AM

General Membership Meeting

This meeting is approved for 1.00 hour volunteer time

10:15 AM – 12:00 PM

Speaker: Judi James, Director, BASF Planetarium, Center for the Arts and Sciences, Clute, Texas

Topic: This is Mars 2018

The BASF Planetarium, incorporated as the Nature Center and Planetarium of Brazosport in 1984, is one of the gems of the Brazosport area. The planetarium features a 30-foot diameter dome and a dual-projector system along with displays, interactive-educational terminals, and a live feed from NASA. Audience seating under the dome accommodates 72 visitors.

At the center of the dome stands the Spitz Model 4A planetarium projector—of excellent optical quality—capable of projecting images of approximately 2000 stars and five naked-eye planets (Mercury, Venus, Mars, Jupiter, and Saturn). The planetarium’s focus on astronomy and the high-quality, well-maintained presentation equipment attracted NASA, whose incoming astronauts learn the night sky as part of their training program.

A full-dome video system provides high-resolution digital video across the full diameter of the dome. NASA’s model of the shuttle (used in wind tunnel tests) is on permanent display at the planetarium.

Weekly programs are presented on Tuesday nights at 7 p.m., with programs changing monthly. An active astronomy club at the planetarium presents periodic “star gaze” programs to the public and school events on-site for students and parents.

Judi James is the Director of the Brazosport Planetarium in the BASF Planetarium building, a Member Group of the Center for the Arts and Sciences.

A graduate of the University of Houston with a major in science education and a minor in geology, Judi holds Texas certification to teach secondary astronomy, geology, meteorology and oceanography. Judi taught school for 29 years at Brazosport ISD, teaching high school astronomy for 14 of those years.

At the Planetarium, where she has served as Director of the BASF Planetarium for over 18 years, Judi hosts a variety of audiences, including grade school students and the general public. She has also presented the Star Identification Class for incoming NASA astronauts since 2000.

In addition to her duties as Director of the BASF Planetarium, Judi serves the Center as writer and director of the Elizabethan Madrigal Feast and as show director, actress and volunteer for Brazosport Center Stages.

Judi’s husband Denis is a founding member of the TMN Cradle of Texas Chapter.
Congratulations to those receiving awards at the
COT July General Meeting:

**Recertification 2018 (Ocelot Pin)**

<table>
<thead>
<tr>
<th>Howard Allen</th>
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<td>Anne Bettinger</td>
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**250 Hours Milestone (Bronze Dragonfly Pin)**

| Joanna Harlan      | Jackie Hicks    |

**500 Hours Milestone (Silver Dragonfly Pin)**

| Jo Myers           |

Volunteer Hours and Impact Data
January 1—June 30

Volunteer hours for the year have reached the 10,000-hour mark. Impact data from all summer library programs will be reported in the August newsletter.

**Update on American Eel Trapping Project** by Stephen Curtis,
Aquatic Biologist, River Studies Program, Texas Parks & Wildlife Department

The first eel specimen collected via one of our project eel mops was in the Sabine-Neches area (see photo below). We believe it to be a Speckled Worm Eel (*Myrophis punctatus*)—a common species in Texas bays and estuaries. Even though this eel is not the targeted American eel, we are excited to confirm that an eel species will utilize our mops here in Texas! Among the differences between Speckled Worm Eels and American Eels are body pigmentation and mouth placement.

Another interesting catch from the Sabine-Neches group is a pipefish (likely a Gulf Pipefish). For more information on this fish, go to [https://tinyurl.com/y8rtkhug](https://tinyurl.com/y8rtkhug). Phyllis Gerdes of COT also caught a pipefish and Peggy and Pete Romfh have been collecting some interesting benthic fishes—a small assortment of gobies, one of which is assumed to be a Naked Goby (see [https://tinyurl.com/yash52ab](https://tinyurl.com/yash52ab)).

Although we have yet to document an American Eel, I am extremely excited by the catch that has already been collected—from amphipods to crabs and shrimp to a wide variety of fishes. The data collected are valuable to this project and future management decisions concerning the American eel.

*Note: You can download K. I. Bonvechio’s article, “Comparison of glass eel stages of American eel and speckled worm eel in a northeast Florida estuary” at [https://pubag.nal.usda.gov/catalog/5722433](https://pubag.nal.usda.gov/catalog/5722433).*

From above: Naked Goby (photo by P & P Romfh); Speckled Worm Eel (photo by Dale Parish); Pipefish (photo by Randy Beehn); Blue-Eyed Goby (photo by P & P Romfh).
Cow Trap Lake Project a Success on Multiple Levels
excerpted from 10 May 2018 Houston Chronicle article by Shannon Tompkins

The Cow Trap Lake Project is a collaborative effort between federal and state agencies, private conservation groups, businesses, and charitable organizations that is reaping multifaceted benefits for wildlife, coastal fisheries, birders, waterfowlers, anglers and others who enjoy natural resources.

The project, which has created more than 10 acres of terraces and islands fringed by more than two miles of intertidal estuarine habitat that is prime fish habitat and fishing areas, began as an effort to address what is becoming an increasing issue along coastal Texas: Loss of coastal marsh, prairie and wetlands.

“We were seeing severe erosion along the north shoreline of Cow Trap Lake,” said Jennifer Wilson, biologist with the San Bernard National Wildlife Refuge, which includes much of the 1,000-acre estuarine lake and adjacent Cedar Lakes complex near the mouth of the San Bernard River in Brazoria County.

Wind-driven waves pushed across the open fetch of Cow Trap Lake were gnawing away the shoreline and eating into the coastal marsh rimming it. That coastal marsh is crucial habitat for waterfowl and other wildlife, serves as nursery habitat for coastal fisheries and other marine life, and serves as a buffer against storm surge and a sponge for floodwaters.

“We estimated we’d lost 17 acres to erosion,” Wilson said. And the problem was accelerating as sea levels rose. That loss of crucial wetlands was a concern to Ducks Unlimited (DU), the international conservation organization focused on wetlands and waterfowl. And DU was one of the first of more than a dozen government, public and private organizations that came together to address the issue.

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“A pair of gull-billed terns, one with a crab in its mouth, wheel over several black skimmers standing on one of two, 3/4-acre islands created as nesting habitat as part of a multifaceted project in Cow Trap Lake on the San Bernard National Wildlife Refuge.”

“It’s a project that fits our purpose—protecting and enhancing vegetated coastal marsh, creating and protecting habitat,” said Kevin Hartke, regional biologist with DU’s Texas Conservation Field Office. “We are glad to be a part of it,” he added.

While the Cow Trap Lake Project has resulted in a wide range of benefits to bird life and fisheries habitat, its primary function is to prevent erosion and loss of coastal marsh. And it is doing that job splendidly. Not only has erosion behind the breakwater of terraces and islands and reef ceased but also the shoreline is beginning to repair itself, with oyster grass growing in the shallows. Also, the breakwaters have been a boon to water clarity along the affected shoreline, sifting sediments from the water and aiding in vegetation reestablishment.

Copyright 2018 The Houston Chronicle. Full article and more images at https://tinyurl.com/CowTrapLake.
Stormwater Wetland Program Work Day
Excerpted from 12 June 2018 “The Stormwater Wetland Volunteer Newsletter”
A publication of the Texas Coastal Watershed Program’s Stormwater Wetland Program

The Stormwater Wetland Program’s semi-annual work day, the first week of June at the John Hargrove Environmental Complex’s Pearland floating wetland, drew six workers, including COT’s Don Sabathier. Volunteers planted Dixie iris (*Iris hexagona*), Halberd leaf hibiscus (*Hibiscus laevis*) and Wooley mallow (*Hibiscus moscheutos*) on floating mats that needed more vegetation. These plants, germinated by COT member Chris Kneupper at the Gulf Coast Bird Observatory wetland nursery, have proven tolerant of life on floating-wetland mats and nutria resistant to boot! The goal of the next work day, in October, is to finish planting on any remaining islands that need vegetation.

Don Sabathier cuts into a biodegradable pot so that it can be folded like a waffle cone to fit pre-formed holes in the mat. Where the mats are beginning to wear thin, this process holds the plants more securely.

Two volunteers use a boat as a barge to move plants, pots and people to the islands. A Halberd leaf hibiscus (*H. laevis*) planted last year has started to bloom.

Background on wetlands at the John Hargrove Environmental Complex (published 2016)

PEARLARD INSTALLS FIRST MUNICIPAL WETLANDS IN TEXAS

Through a grant funded by the Texas A&M University System and administered by Texas Sea Grant / Texas A&M AgriLIFE Extension Service, the City of Pearland launched the first municipal floating-wetland installation in Texas. City staff, along with 90 volunteers, began work on the wetland project in February 2016 to provide a unique attribute to the community. The purpose of such projects is to provide a non-invasive way of improving water. In preparation for the planting, Master Naturalists collected and measured water quality surrounding the John Hargrove Environmental Complex. With benchmarking provided by local environmental and nature enthusiasts, the wetlands will continue to be measured for efficiency and effectiveness in improving water quality.

The planting was accomplished in large part by a dedicated volunteer base of residents and nature enthusiasts. Volunteers logged a total of 378 volunteer hours to successfully plant and prepare the islands for launch. These wetland islands are manufactured using recycled materials and provide a substrate that supports wetland growth in non-traditional planting areas. Several groves of Bulrush and Texas Gulf Coast native, aquatic, plant pods were also installed to enhance filtration ability and restore native plant life to complement the Delores Fenwick Nature Center. [https://tinyurl.com/PearlandWetland](https://tinyurl.com/PearlandWetland)
Wild Pigs Negatively Impact Water Quality
by Forrest Cobb, Research Assistant, Texas A&M Natural Resources Institute

Three years ago, some of my colleagues and I spent every week checking an electric fence we hoped would keep out wild pigs.

We were conducting a horticultural study with 1,600 fresh and tender ornamental plants grown over the course of a year. Unfortunately, our small plot was not far from a creek that supported a seemingly endless population of wild pigs. Every week we would see damaged brush, dead plants, and clumps of bare, loose soil just outside the fence line. The pigs never got inside, but while we had the luxury of fencing off and maintaining the relatively-small enclosure, that same level of exclusion would not have been feasible for a larger tract of land and certainly is not for stream and river courses and their associated wetlands. Impacts on agriculture, plant diversity, and wildlife habitat can easily be observed in areas disturbed by the rooting behavior of wild pigs. One of their less obvious impacts is their impact on water quality.

Biology, Distribution and Harvest of Wild Pigs in Texas

Wild pigs now occur in at least 36 states, and the economic toll of these animals in the U.S. was estimated to exceed $1.5 billion in 2007, a number likely to be much larger today. Population modeling indicates that as many as three to five million wild pigs now inhabit Texas and they are present in almost every county in the state (Figure 1). The number and range of these animals is not surprising considering their incredible adaptability and fecundity. With an average lifespan of four to five years, adult sows commonly produce litters of four to six offspring and can have one to three litters per year. Their population growth is relatively unchecked by predators: Coyotes, bobcats, and feral dogs prey upon juveniles, but humans remain the only significant predators of adult wild pigs. Modeling has indicated that as much as 66% of the wild pig population would need to be harvested every year for five years or more to halt population growth. With humans harvesting only an estimated 29% of the population per year, we will see continued growth and spread of wild pigs; omnivorous and intelligent, they are well adapted to conditions across the state, and their foraging, opportunistic predation, rooting, and wallowing behaviors are incredibly disruptive, having serious repercussions for the ecological and economic health of our state.

Wild Pig Impacts on Wetlands and Riparian Areas

A worrisome aspect of wild pigs in Texas is the impact they have by damaging riparian areas and wetlands. Since wild pigs lack sweat glands, they often stay close to water bodies to cool themselves by wallowing in wet, shaded areas. This concentrates populations in sensitive riparian areas, which are both crucial transitional zones between upland areas and water bodies and a vital component of maintaining overall water quality.

Healthy riparian and wetland communities perform numerous critical functions that maintain water quality including: stabilizing soils, decreasing water velocities during flooding, providing fish and wildlife habitat, mitigating contamination from surrounding storm water runoff, and lowering water temperatures through shading. Because of their disruptive rooting and wallowing behavior, as well as heavy foraging of native mast (fruits and nuts), wild pigs can significantly decrease native vegetation cover in riparian corridors. By reducing native ground cover, native tree abundance, and native seedling establishment, they increase the presence and abundance of invasive plant species, and destabilize stream and river banks leading to increased sedimentation, nutrient loads, turbidity, and altered pH levels.

Figure 1. NMFSS data showing 2016 feral swine populations by county. (Image Credit: USDA-APHIS in Corn and Jordan 2017)

Continued on next page
**Wild Pigs and Bacterial Impairment**

While they indirectly impact water quality through the destruction of riparian and wetland communities, wild pigs also directly impact water quality through defecation. One study of fecal coliforms in the Buck Creek watershed of Texas found that as much as 50% of *E. coli* bacteria samples collected were from wildlife sources including wild pigs, while only 20% originated from domestic animals or livestock. With a high defecation rate (1,121 grams per day) when compared to other wildlife species like white-tailed deer (500-772 grams per day), their contribution to bacterial loading and water quality is becoming a growing concern for land managers and regulatory authorities statewide. As of 2012, the majority of Texas water bodies were listed as bacterially impaired. Bacterial impairment increases the potential for disease transmission in both wildlife and human populations. Recreational activities such as swimming, wading, and fishing are necessarily restricted because of these unsanitary conditions.

Agriculture is also impacted when access to high-quality water becomes limited. One study found that livestock with a quality water supply can produce as much as 20% more animal gain as compared to livestock with access to impaired water. Furthermore, the low dissolved oxygen and high nutrient levels associated with impairment can reduce aquatic species abundance and diversity and lead to massive algal blooms and fish kills.

**Conclusion**

Wild pig populations contribute to impaired water quality in Texas, both directly through fecal deposition, and indirectly by altering wetland and riparian communities. While more research is needed to quantify their impact and contribution to water impairment, wild-pig abatement has been shown to benefit riparian ecosystems and overall water quality by reducing bacterial impairment, reducing the spread of invasive species, increasing vegetation cover, facilitating proper nutrient cycling, decreasing erosion, and decreasing surface water turbidity. Given the wide spread and growing challenge posed by wild pigs in Texas, the potential benefits of management and control should be considered in any plan for improving or safeguarding water quality. Application of consistent and widespread abatement efforts remains the only way of stabilizing and thus reducing the impacts of wild pig populations on landscapes and water quality in Texas.

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Wild pig activity in and near water sources can spread invasive plant species, destabilize soil, reduce native species abundance, alter nutrient and pH levels, increase turbidity, and contribute to increased *E. coli* bacteria levels in surface-water systems.
Nature Camp at Camp Mohawk County Park—2018

The rain did not deter the intrepid campers (or volunteers) during this year’s nature camp, June 18-24. Several of the 26 attendees, ages seven to thirteen, were returning campers. Led by Mike Mullenweg, Brazoria County Lead Interpreter / Events and Trails Coordinator (and COT member), coordinated by Ed Barrios, and staffed by Mike, Ed, Michael Bailey, Marty Cornell, Bryan Frazier (Brazoria County Parks Director), Julia Geisler, Jerry Krampota, Becky Mcclendon Huff, Ruby Lewis, Herb Myers, Jo Myers, Lisa Myers, Kim Richardson, Pam Pelletier, Kim Richardson, Dick Schaffhausen, and Carole Wenny, all activities proceeded with minor adjustments for the weather.

This year’s sessions included: Bug Sweeping; Photography; Archeology; Pond Life; Fishing; The Water Cycle; Reptiles; Owl Pellets; Projecting Microscope; Raptors; Monarch Butterflies; and Archery. Photos provided by Marty Cornell, Mike Mullenweg, Herb Myers, and Dick Schaffhausen.

Continued next page
Nature Camp at Camp Mohawk County Park—2018 continued
### Cradle of Texas Chapter Board

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
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<tbody>
<tr>
<td>President</td>
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<td>Vice President/Program</td>
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<td>Neal McLain, Brazoria</td>
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<td>Class of 2017 Representative</td>
<td>Bob Whitmarsh, Lake Jackson</td>
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### Chapter Advisor
- John O’Connell, AgriLIFE Extension Service

### Newsletter Editor
- Lisa Myers, Lake Jackson

### Newsletter Contributors
- Neal McLain (Chief Reporter, Editorial Advisor), Kristine Rivers, Peggy & Pete Romfh, Stephen Curtis, Forrest Cobb

### Master Naturalist Email Lists

**TMN-COT Chapter list**
- Instructions [http://tmn-cot.org/Email_Lists/index.html](http://tmn-cot.org/Email_Lists/index.html)
- Send messages to TMN-COT@googlegroups.com
- All messages are sent immediately.

**State Master Naturalist list**
- Instructions [http://txmn.org/staying-connected/sign-up-for-tmn-listserv/](http://txmn.org/staying-connected/sign-up-for-tmn-listserv/)
- Subscribe listserv@listserv.tamu.edu
- All messages are held for moderation by the TMN State Coordinator.

*Chapter News* is published monthly on Monday before the General Meeting by the Texas Master Naturalist Cradle of Texas Chapter. Submissions are welcome; submission deadline is 5:00 PM on Friday before the General Meeting. Send submissions by email to *Chapter News* Editor at news@tmn-cot.org. Submissions may be edited for clarity and spacing.