

Newsletter of The Gopher Tortoise Council

Message From a Co-Chair

Will Dillman



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Hello GTC! Spring seems to have arrived early this year and many of us have been caught off guard. Temperatures in South Carolina have been well into the 70s and signs of spring abound. With this early arrival, my field work has already begun, having kicked into high gear just as I returned home after the annual meeting. I'd like to thank Dick Franz for hosting an extremely successful and enjoyable meeting in Palatka, Florida, in January. This was a huge feat after being forced to reschedule and reconstitute the meeting in very short order. Originally the meeting was planned for October, but Hurricane Matthew had other ideas, and the meeting was cancelled. After a flurry of emails, it was decided to reschedule the meeting for January, which was no small task. We were delighted to see a significant increase in registration for the rescheduled conference and were able to accommodate the increase with meeting venues nearly at capacity. It was at this meeting, to my surprise, that I was selected as the incoming co-chair and tasked with organizing this year's annual meeting.

For those who don't know me, I have been the South Carolina representative to the GTC Board for the last three years. Since 2013, I have been the Reptile and Amphibian Conservation Program Coordinator for the South Carolina Department of Natural Resources (SCDNR). In this role I have had the pleasure of working with a diverse group of herps throughout the state, with gopher tortoises being one of the focal species of much of my work. Since I began, SCDNR has continued efforts to establish a viable population of tortoises at the northern extent of the species' range using waif tortoises. This collaboration with the University of Georgia's Savannah River Ecology Lab (SREL) is conducted at Aiken Gopher Tortoise Heritage Preserve (AGTHP). In the coming months, we will be initiating an evaluation of long-term site fidelity, survivorship, and social integration at AGTHP with SREL. Other work that SCDNR is conducting includes LTDS surveys of tortoise populations on public and private lands, and a survivorship and recruitment study at AGTHP. I'd like to thank everyone for giving me the opportunity to serve as the co-chair and look forward to working with GTC members to promote conservation of this species.

I am happy to announce that we have selected the dates and location for the 39th annual meeting of the Gopher Tortoise Council. The 2017 meeting will be held at the National Wild Turkey Federation's Wild Turkey Center in Edgefield, South Carolina on October 13-15, 2017. Social events will be held in downtown Aiken, SC. The Board Meeting will occur on the evening of Thursday, October 12, with the general meeting being held Friday and Saturday, October 13 and 14. We will highlight South Carolina's efforts to establish a viable population of gopher tortoises at AGTHP with an optional field trip on Sunday, October 15. We hope to have meeting and registration details available soon on the website. I look forward to seeing everyone in October!

Will

ANNOUNCEMENTS



2017 Annual Meeting

Please join us in South Carolina for the 39th Annual
Gopher Tortoise Council Meeting
In Edgefield, SC
October 13-15, 2017

Stay tuned for more details on our website at www.gophertortoisecouncil.org

The J. Larry Landers Student Research Award

The **J. Larry Landers Student Research Award** is a Gopher Tortoise Council competitive grant program for undergraduate and graduate college students. Proposals can address research concerning gopher tortoise biology or any other relevant aspect of upland habitat conservation and management. The amount of the award is variable but has averaged \$1,000 over the last few years.

The proposal should be limited to four pages in length and should include a description of the project, a concise budget, and a brief resume of the student.

This is an excellent opportunity for undergraduate and graduate students to access funding for their projects.

The deadline for grant proposals each year is the 15th of September. Proposals should be submitted electronically in Word...please check website for details on where to submit proposals after May 1, 2017, at www.gophertortoisecouncil.org. For questions please contact Lora Smith at lsmith@jonesctr.org.

Keep track of Gopher Tortoise news and Council updates!

Find us on-

The Facebook logo, consisting of the word "facebook" in white lowercase letters on a blue rectangular background.

ANNOUNCEMENTS

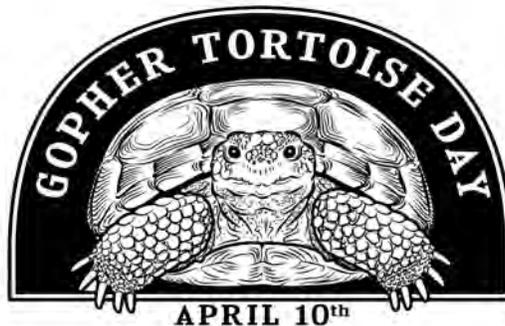
Gopher Tortoise Council's 2017 Donna J. Heinrich Environmental Education Grant

The GTC Environmental Education Grant was established to support educators and organizations committed to developing educational projects about the gopher tortoise and the fascinating world in which it lives. The grant also honors Donna June Heinrich, an environmental educator, whose life was dedicated to conserving wildlife and their associated habitats.

Deadline for submission of this year's proposals is August 31st, 2017. Applications may be downloaded from our website (www.gophertortoisecouncil.org). On the left hand side of the page click "Grants Program" and scroll down after the grants page loads. Applications which contain the following will be given preference:

- Projects that reach diverse and new audiences
- Projects that focus on the importance of the conservation of intact upland ecosystems
- Projects that encourage community involvement
- Projects that have matching funds

Please follow the instructions on the grants program page noting the requirements. For questions contact Cyndi Gates at cyndi@fgates.com. Proposals should be submitted to the same email address.



JOIN US IN CELEBRATING GOPHER TORTOISE DAY!

Gopher Tortoise Day was designated to increase awareness of this fascinating creature and the need to protect its habitat throughout its range in Louisiana, Mississippi, Alabama, Georgia, Florida and South Carolina.

If you are interested in organizing an event to celebrate the Gopher Tortoise, look for associated information developed by the Public Information and Education team in this newsletter, on our website at www.gophertortoisecouncil.org and on facebook.

Kids-check out page 9 in this issue of *The Tortoise Burrow* and "Go Crazy for Gopher Tortoises!"

Fun Facts! Presented by the Public Information and Education Committee



DESCRIPTION: Gopher tortoises are land turtles that average 9–11 inches in length and weigh up to 9 pounds. They have stocky, elephant-like hind feet and flattened, shovel-like forelimbs adapted for digging. Their domed, elongated shell is tan or brownish gray. Hatchlings are bright yellow. Adult males have a concave plastron (bottom shell), longer tail and extended shell under their chin that distinguishes them from females. Females are larger in size.

HABITAT + RANGE: The gopher tortoise requires open, dry, sandy upland habitat with abundant low growing vegetation, such as pine flatwoods, scrub, oak-sandhills and coastal dunes. The only tortoise east of the Mississippi, it occurs in the southern regions of Alabama, Mississippi and Georgia, much of Florida and limited parts of eastern Louisiana and southwest South Carolina.

LIFE HISTORY: Gopher tortoises dig burrows up to ten feet deep and 40 feet long that shelter them from sun, fire and predators. They are considered a keystone species because they share these burrows with over 350 commensals - including insects, amphibians, other reptiles, birds and mammals. Significant species that benefit from using tortoise burrows are the gopher cricket, gopher frog, eastern indigo snake, eastern diamondback rattlesnake, burrowing owl and Florida mouse. Gopher tortoises can live 40-60 years in the wild.

DIET: Gopher tortoises are herbivores. They eat grasses, prickly pear cactus, berries, legumes, clover, cat brier, palmetto berries and pine needles. They get water from these plants plus dew and rarely need to drink.

REPRODUCTION: Gopher tortoises don't reach maturity until 10 years of age or older. To initiate mating a male will head bob, shell nip and rub pheromones from scent glands on his legs onto the female, who digs a nest at the mouth of her burrow. The breeding season is April–November, but only one clutch of about six eggs is produced annually. Incubation is 80-100 days. The temperature of the nest determines the gender of the hatchlings, before creating a burrow of their own or living temporarily in an adult burrow.

STATUS: Gopher tortoises are state listed as Threatened in Georgia, Florida, eastern Alabama and South Carolina and federally listed as Threatened in Mississippi, Louisiana and western Alabama.

THREATS: A major threat is loss of habitat due to development and also fire suppression, which allows small trees, shrubs, and brambles to grow making navigation difficult and shading out the vegetation that gopher tortoises eat. Road mortality, disease and predation on nests and hatchlings are also factors.

Recent Publications

Bauder, J.M., D.J. Stevenson, C.S. Sutherland, and C.L. Jenkins. 2017. Occupancy of potential overwintering habitat on protected lands by two imperiled snake species in the Coastal Plain of the southeastern United States. *J. Herpetology* 51(1): 73-88.

Krysko, K.L., L.P. Nunez, C.E. Newman, and B.W. Bowen. 2017. Phylogenetics of kingsnakes, *Lampropeltis getula* complex (Serpentes: Colubridae), in eastern North America. *J. Heredity* 1-13, doi.10.1093/jhered/esw086.

Semlitsch, R.D., S.C. Walls, W.J. Barichivich, and K.M. O'Donnell. 2017. Extinction debt as a driver of amphibian declines: An example with imperiled flatwoods salamanders. *J. Herpetology* 51(1): 12-18.

Kids! Did you know...

Gopher tortoise burrows provide shelter to over 360 other kinds of animals? This includes animals like snakes, frogs, mice and lots of bugs like moths, beetles, and crickets.

We call these animals “commensals”- or species who receive benefits from living with another species without causing the other species harm. Check out the activities on pages 10 and 11!

For more information check out these websites:

FWC's Gopher Tortoise Commensals fact sheet at:

http://myfwc.com/media/2447514/GT_commensal.pdf

Gopher Tortoise Day Florida at <http://gophertortoisedayfl.com/fun-facts>

Outdoors Alabama Gopher Tortoise Conservation and Forest Management Brochure at

<http://www.outdooralabama.com/sites/default/files/GopherTortoiseBMPs.pdf>

For a great video on gopher tortoises and how scientists study them, go to:

<https://www.youtube.com/watch?v=6bvB9owlJ9M>

“Student Spotlight” GTC wishes to highlight students who are actively involved in upland conservation projects within the gopher tortoise’s range in the GTC newsletter. The purpose of this feature is to encourage greater student participation in the organization and bring recognition to students and their projects. Projects pertaining to research, management, or policy will be considered. Please submit a brief description of the project and any findings to date. Submissions should be 500 words or less and may be accompanied by photographs. Please send to: cyndi@fgates.com

Special thanks to Michelina Dziadzio for editorial assistance on this newsletter!

STUDENT SPOTLIGHT

Felicia Nudo

For my Florida Master Naturalist project, I wanted to put together some materials to integrate with my senior project this semester at Florida Gulf Coast University (FGCU) entitled "The Language of the Earth." For this project, I compiled an environmentally-based curriculum for kindergarten and first grade students at Franklin Park Elementary in Fort Myers. Since I was learning about environmental interpretation, I thought this would be a great final project for the program. I used materials on the GTC website including the gopher tortoise range map and information from "The Gopher Tortoise: A Species in Decline" to develop lesson plans and write a short story. At the end of this article is a poem I wrote as part of my final project for the Florida Master Naturalist Program.

To make a long story short, the gopher tortoise is my favorite species thanks to a service learning experience a few summers ago. I participated in a prescribed burn at Barefoot Beach Preserve to maintain the habitat for tortoises. I didn't understand the bigger picture until I took a course that explained that gopher tortoises are a keystone species. It was then that I understood why it was so important to make sure they have adequate habitat.

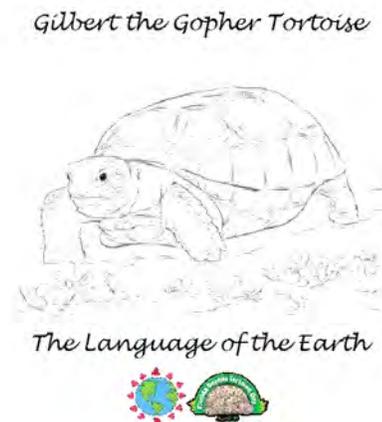
If I was as interested in the environment when I was younger as I am now, I can't imagine the great things I would have accomplished by this time. Therefore, my goal for this curriculum is to spark children's interest in the environment at a young age. Franklin Park Elementary is one of the most impoverished schools in Lee County and is located in an underserved area. From what I understand, these kids have little exposure to environmental education programs. I used a stuffed gopher tortoise in each classroom I visited to symbolize that everything is connected.

I would like to recognize my Master Naturalist course instructor, Cindy Bear, for her tireless efforts toward environmental education/interpretation. I would also like to acknowledge Amanda Gray, a fellow student at FGCU, who created the display board used in my educational curriculum; Amanda also took the classroom photographs for this story.



Figure 1. Participant in the curriculum "The Language of the Earth" holding Gilbert, the course's animal ambassador.

Figure 2. Provided with Gilbert, the plush gopher tortoise, is a short story explaining Gilbert's life and the importance of his species to the ecosystem.



Continued...next page

STUDENT SPOTLIGHT continued...



Figure 3. Felicia teaching her environmental curriculum. The display board includes fun facts about the diet, shell, and life history of gopher tortoises and their burrows.

Felicia is a senior at Florida Gulf Coast University working toward her Bachelor's degree in Environmental Studies.

Gopher Thoughts By Felicia Nudo

Gopher tortoises dealing with constant struggles
Loss of habitat, road mortality, and human troubles
Surviving
In a concrete jungle

They are known as a keystone species
A species on which others largely depend
Feasting on prickly pear cactus and blueberries
Dispersing their seeds to no end

They get their water by eating plants and dew
Roaming in upland systems, under the sky that is blue

Kicking up dirt when digging their burrows
Recycling nutrients for the plant community
Providing homes to hundreds of species
Gopher tortoises bring together many in unity

They are ecosystem engineers, good neighbors, and wise
But humans have played a major role in their decline
For this, we must compromise

We must actively protect them
Or their numbers will be few
This protection
Starts with you

Chinsegut Conservation Center puts the GTC-Donna J. Heinrich Environmental Education Grant to good use-by Gina Philhower

Visitors to Chinsegut Conservation Center, a Florida Fish and Wildlife Conservation Commission Education Center in Brooksville, Florida, are now able to get up close and personal with gopher tortoises using a burrow scope. Through a grant provided by the Gopher Tortoise Council the Center purchased a gopher tortoise burrow scope in the hopes the in-situ experiences it allows inspire visitors to conserve tortoises and the habitat of which they are an integral part. Having access to a burrow scope for education will provide years of opportunities to interact with thousands of visitors from toddler age to seniors and create a new generation that has stewardship values for the environment.

Chinsegut Conservation Center lies in upland pine habitat and is adjacent to several other similar conservation lands. The property has many tortoises which are common place within Brooksville meaning many of the visitors to the Center routinely see or interact with tortoises. Despite the number of animals occurring locally, few visitors are well informed on consideration for living with tortoises, conservation needs, legal protection and the importance of the tortoises in their natural communities. Over 1,000 visitors of all ages take part in programs at the center each year. Many programs are targeted at school age children (especially home-schooled children) with the hope of instilling conservation values in youth and shaping personal connections with nature. Through applying scientific equipment in a field setting students gain not only unique experiences with gopher tortoises but awareness of environmental career opportunities and confidence and competence with technology.

Incorporating a scientific method with equipment to explore the world of gopher tortoises allows for greater understanding of the sensitive nature of the animals and their burrows. This hands-on approach also forges a strong personal connection, especially for younger students, with the tortoises. Students not only gain a better understanding of tortoises but a better understanding of what information is used by conservation scientists in determining how to manage gopher tortoise habitats and populations. In addition, parents and chaperones have become more engaged in asking questions and expressing a desire to see what is in the burrow.

The gopher tortoise burrow scope will give visitors hands-on exposure to field equipment and a first-hand experience with one of the most fascinating animals of the Southeast. For many students visiting Chinsegut this will be the first exposure they get to field science and putting scientific tools into their hands can have a lasting impact. "I will never forget the first time I got to collect terrestrial animals in pitfall traps as part of a summer science camp. That experience is ultimately what inspired my life long career path as an environmental educator." says Gina Long, Director of Chinsegut Conservation Center. The scope has been instrumental and will continue to be used for many years as a tool to connect people on a personal level with tortoises and their commensals in programs emphasizing the need for conservation and proper land management.



Top Left-Home School students learn about tortoise burrow-apron sensitivity



Top Right-Home School students look closely for signs of animal life inside a tortoise burrow



Bottom Right-Nature Photography students take a crack at a different type of photography in an abandoned burrow

Kids' Corner



GO CRAZY FOR GOPHER TORTOISES

Gopher tortoises are brownish gray land turtles about the size of a Frisbee. They are **reptiles**, which means they have a backbone, scaly skin, lungs to breathe and are cold blooded.

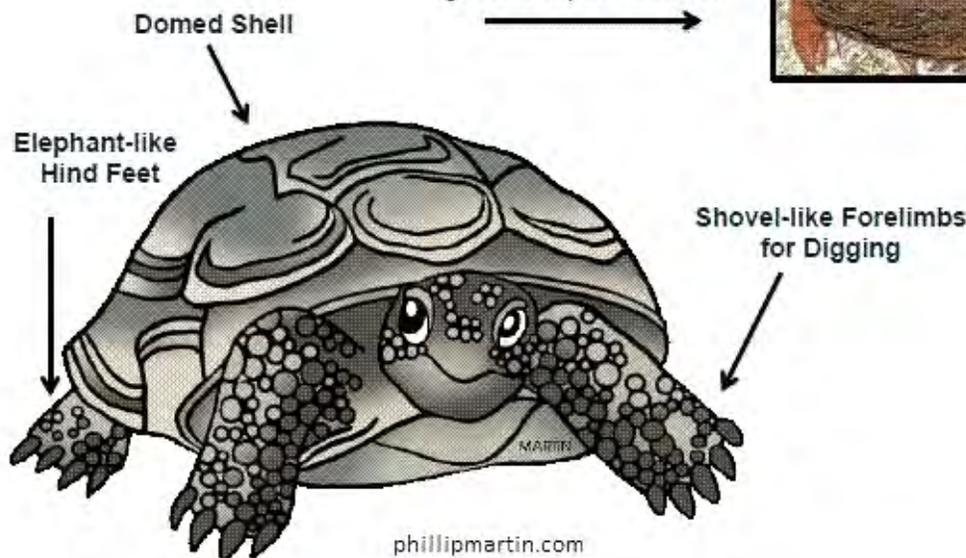
Gopher tortoises dig long, deep **burrows** that protect them from sun, fire and predators. They share their burrows with over 350 other animals, including insects, amphibians, other reptiles, birds and mammals. They are a very important species since they provide homes for so many other animals.

To survive, gopher tortoises need dry, sandy areas with few trees so they can dig their burrows, plus low growing plants that supply food for their **herbivorous** diet. They like to eat grasses, prickly pear cactuses and pine needles. Sandy soil is also a great place for female tortoises to lay their eggs, which they bury in the ground. After about three months a lemon-yellow baby hatches from each of approximately six eggs. The hatchlings will live temporarily in an adults burrow or create their own.

Gopher tortoises are a **Threatened Species**. That is because their **habitat** is often destroyed by development, or when trees are allowed to grow up and shade out their food. In addition, many get hit by cars when crossing roads and their eggs and babies are eaten by predators.

Gopher Tortoise Poop

Note the undigested grass and pine needles.

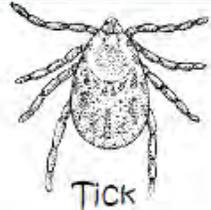
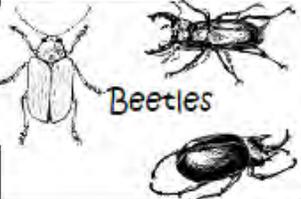
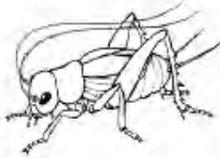


Kids' Corner continued...

Gopher Tortoise Commensals

Gopher tortoise burrows are home to all of these critters and are very important for the health of Florida's natural ecosystems.

Color the mammals yellow. Color the reptiles green. Color the birds blue. Color the bugs red. Draw a circle around the invertebrates. Draw a square around the vertebrates.

 <p>Coral Snake</p>	 <p>Striped Skunk</p>	 <p>TICK</p>	 <p>Burrowing Owl</p>
<p>Scorpions and Spiders</p> 	 <p>Diamondback Rattlesnake</p>	 <p>Raccoon</p>	 <p>Beetles</p>
 <p>Florida Mouse</p>	 <p>Gopher Cricket</p>	<p>Flies, Bees and Wasps</p> 	 <p>Gopher Frog</p>

From www.myfwc.com

Circle other kinds of animals you might find in a tortoise burrow below...(Answers on next page!)



Photo credits-clockwise from top left-Myelomacrowd.org, David Almquist, Fiona Sunquist, www.wfla.com, nature.org

Kids' Corner continued...

See how many tortoise burrow commensals you can find!

Enjoy this word search puzzle focusing on commensal species that use tortoise burrows!

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E R A P W T G O R F R E H P O G B C T L L D
I S A O P E H V M H G E C U A G O Z W F I X
N O I N S K E B V M Y V A R A M P O Q A F U
D I N O O C X K V T Z N L U M I G J M V K R
I B V L T I A R A T W F X E W N M O T K F Z
G R R K M R B R V N G I N R I W N T J L K A
O W A P W C O N A Z S S E W A D R V X H W N
S E L P F R B T O B A E O G B B D T P O F U
N A B T H E L H R L B R N A V A J J I N A C
A G W A H H J U S E R E C I Z O C Y R I T P
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X K S N D I W F B W K I W E P U J D R W M F
E J F N V P S Q U U Z N L B M H S W T U K R
  
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KEYSTONE SPECIES

GOPHER TORTOISE

BURROW

COMMENSALS

DIAMONDBACK RATTLESNAKE

INDIGO SNAKE

GOPHER FROG

BURROWING OWL

OPOSSUM

FLORIDA MOUSE

PINE SNAKE

SCARAB BEETLE

GOPHER CRICKET

Answers from Page 10- Clockwise from top left-**Elephant**-of course not-too big plus elephants don't live where gopher tortoises live! **Punctate Gopher Tortoise Onthophagus Beetle**-Yes! This beetle buries gopher tortoise poop and helps keep the burrow clean! **Eastern Cottontail Rabbit**-Yes! Bunnies will use burrows to hide in. **Shark**-Nope! Sharks live in the water! **Eastern Indigo Snake**-Yes! Tortoise burrows are important homes for this snake-especially in the winter time when it's cold!

Newsletter of The Gopher Tortoise Council

Directory of 2016 Gopher Tortoise Council Officers,
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Please view the GTC website (below) for contact information

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<http://www.gophertortoisecouncil.org>

The Tortoise Burrow is published in April, August, and December. Deadlines for submission of announcements and articles are the 10th of the preceding month. Send materials to the editor:

Cyndi Gates

cyndi@fgates.com

Decisions concerning publication of submitted material rest with the editor and co-chairs.

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