

Answering the Call: Using Citizen Science to learn more about our Amphibian Neighbors

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Who is singing?



Let's get hopping

- What are Amphibians
- Salamanders
- Frogs & Toads
- Wetlands/Backyard Habitat Requirements
- Threats to Populations*
- Citizen Science



Amphibians are Important

- Benefit the natural world and humans:
 - Predators and prey in the ecosystem
 - Pest control
 - Food
 - Medicine
 - Education and research
 - Culturally significant
- Serve as indicators of environmental health



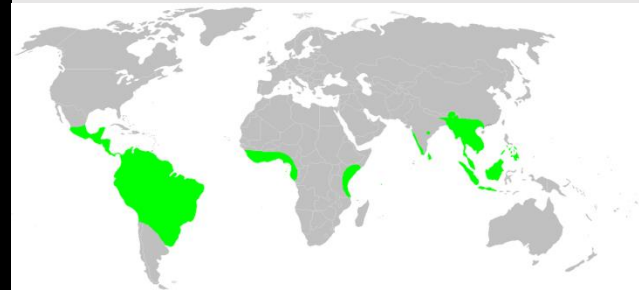
Frogs & Toads



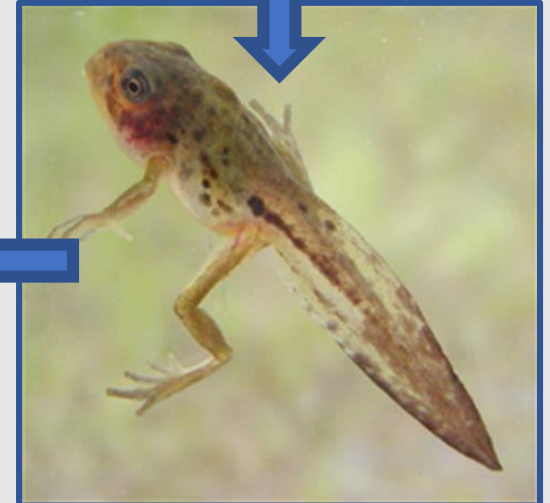
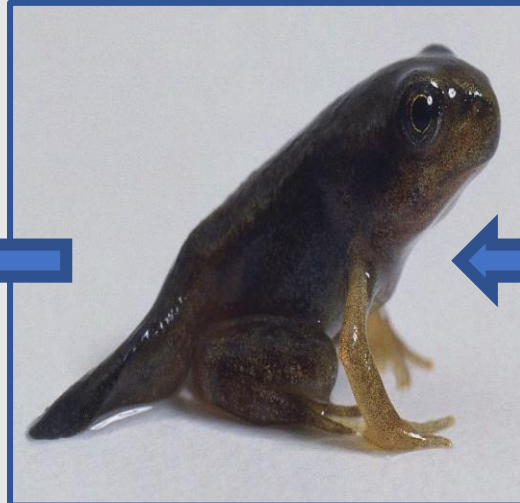
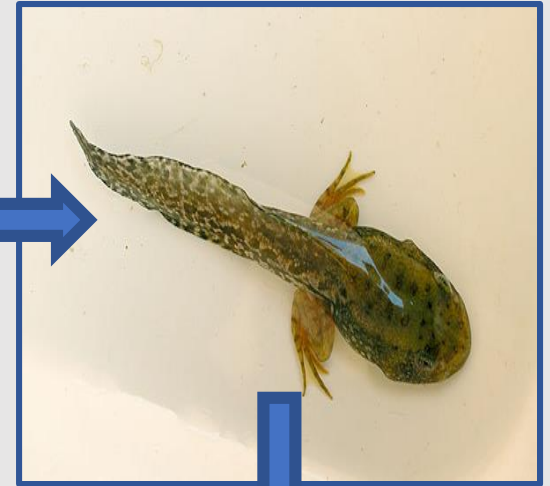
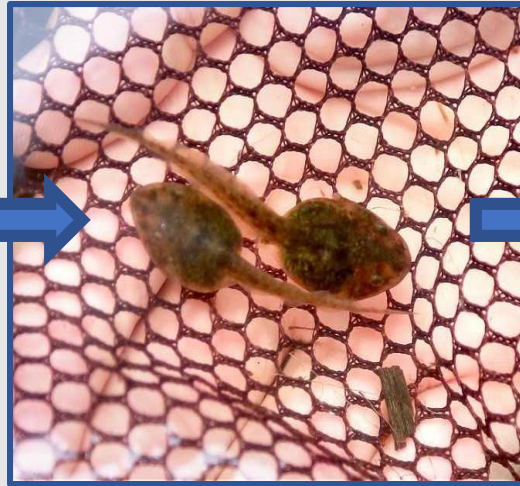
Salamanders & Newts



Caecilians



Life Cycle:



Salamanders, Amphibian Rebels

- 56 species found in North Carolina
- The southeastern United States has the largest salamander diversity in the world



Photos by: Kevin Stohlgren, Todd Pierson

Marbled Salamander

Ambystoma opacum

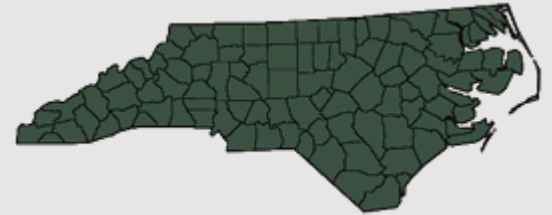


Photo by Kevin Stohlgren

Tiger Salamander

Ambystoma tigrinum

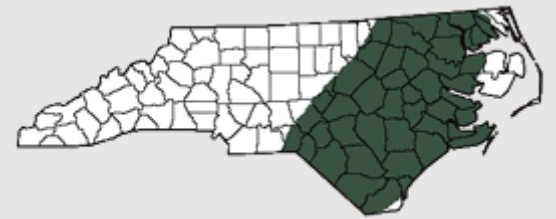


Photo by Todd Pierson

Blue Ridge Two-Lined Salamander

Eurycea wilderae

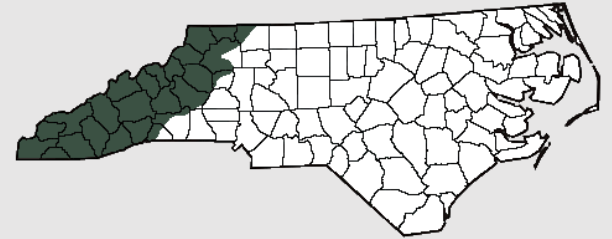


Photo by Todd Pierson

Red-Spotted Newt

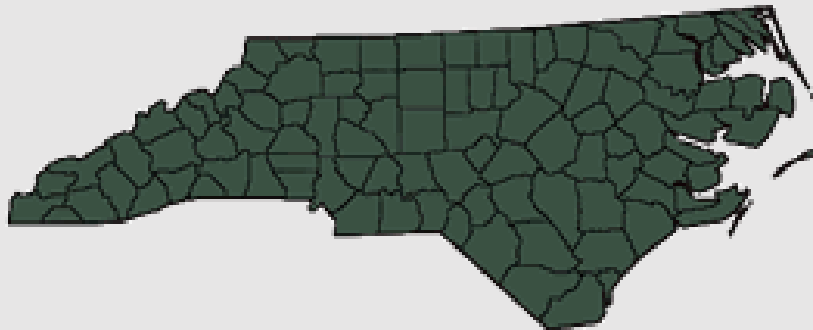
Notophthalmus viridescens



Photo by Kevin Stohlgren



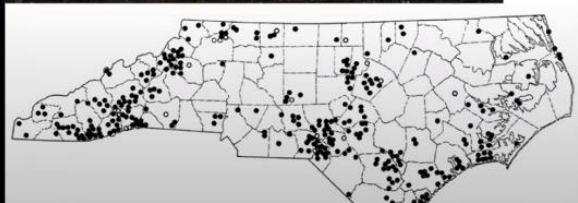

Photo by Todd Pierson



NC Wildlife Resources Commission Workshop

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Video player controls: 56:12 / 1:33:11, Play, Stop, Mute, Volume, Full Screen, Share, Save, More

North Carolina Salamander Workshop

322 views • Aug 4, 2020

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N.C. Wildlife Resources Commission
13.1K subscribers

Wildlife Profiles and other information on NC Salamanders:
<https://www.ncwildlife.org/Learning/S...>

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Pollution



Pest Control

- Allow natural predators to do their work
- If you need to use a pesticide or herbicide, try to use the most environmentally friendly options possible
 - Products that target specific species
 - Products that have a short lifespan
- When using any chemical in your yard/garden, use the proper amounts



Frogs and Toads

- 30 Species in NC
- General differentiations between frogs and toads:

Frogs

Smooth or slimy skin

Lay eggs in clusters

Usually live in or near water

Skinny bodies with long legs

Move in leaps and jumps

Upper jaw with teeth



Toads

Warty, dry skin

Lay eggs in long strands

Usually live on dry land

Fat bodies with short legs

Move in short hops

No teeth



Bullfrog

Lithobates catesbianus

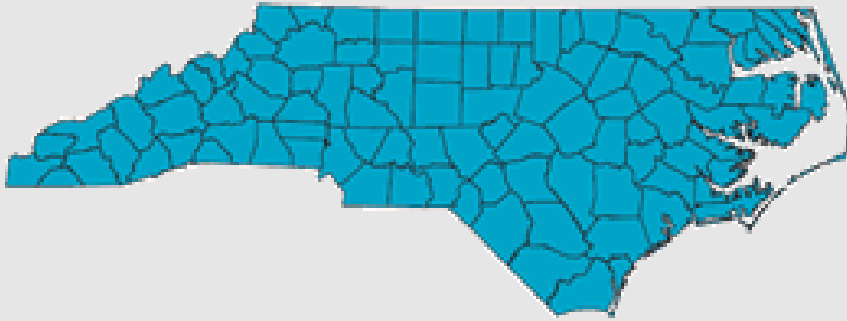


© USGS



Bullfrog

Rana (Lithobates) catesbeiana



April-August

Pine Barrens Treefrog

Hyla andersonii

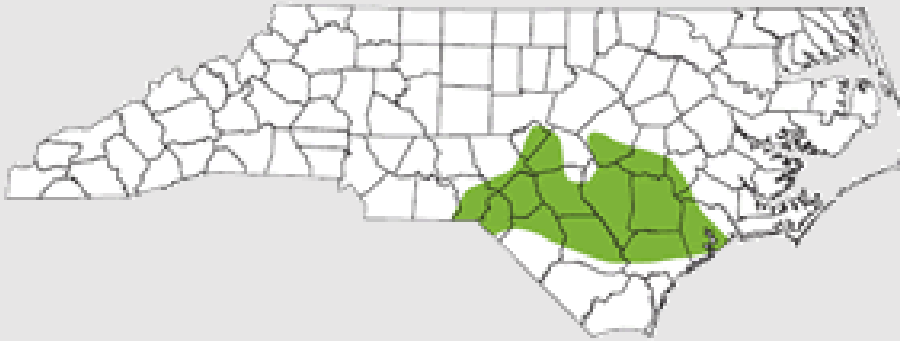


Photo by Mike Martin



Pine Barrens Treefrog

Hyla andersonii



April-September

Spring Peeper

Pseudacris crucifer

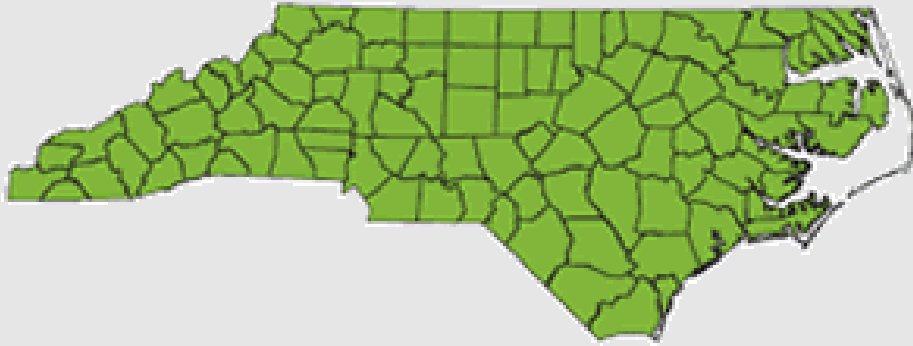


© Jim Harding, MSU



Spring Peeper

Pseudacris crucifer

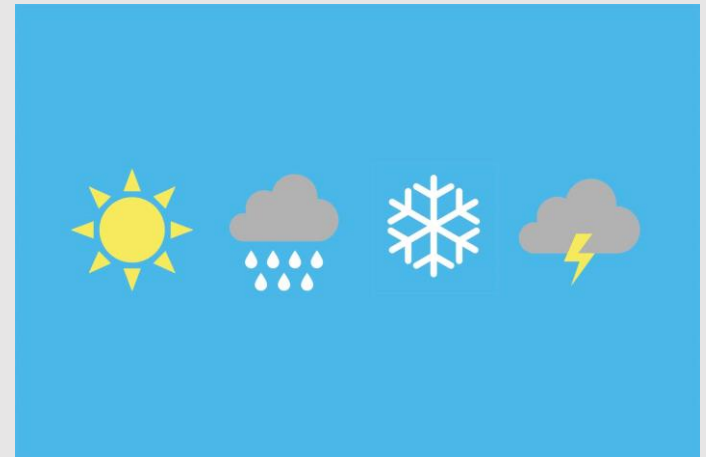
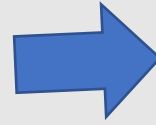


November-April

Climate Change

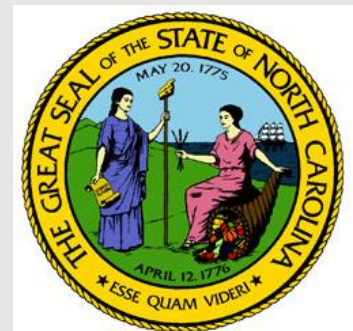
- Rangers in Sesquicentennial State Park, South Carolina heard Spring Peepers calling two months earlier than ever recorded in the park.
- How could climate change impact amphibians?





Climate Change

- In Executive Order 80: North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy, Governor Roy Cooper laid out a series of goals for the state to strive to accomplish by 2025:
 - Reduce statewide greenhouse gas emissions to 40% below 2005 levels
 - Increase the number of registered, zero-emission vehicles (ZEVs) to at least 80,000
 - Reduce energy consumption per square foot in state-owned buildings by at least 40% from fiscal year 2002-2003 levels



Cope's Gray Treefrog

Hyla chrysoscelis

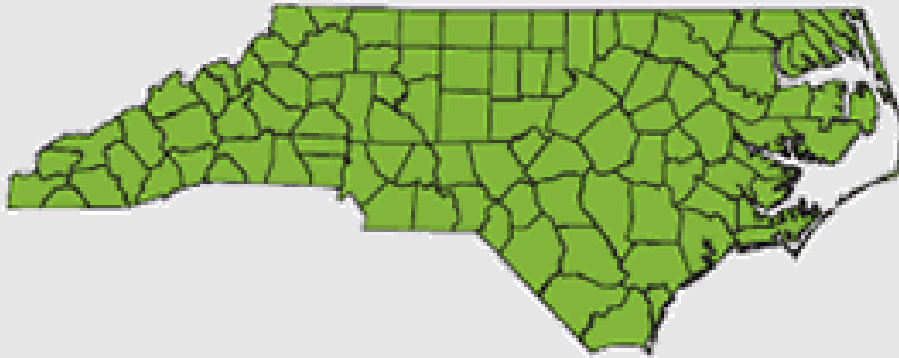


© Joe Greathouse, Oglebay's Good Zoo



Cope's Gray Treefrog

Hyla chrysoscelis



April-August

Green Frog

Lithobates clamitans

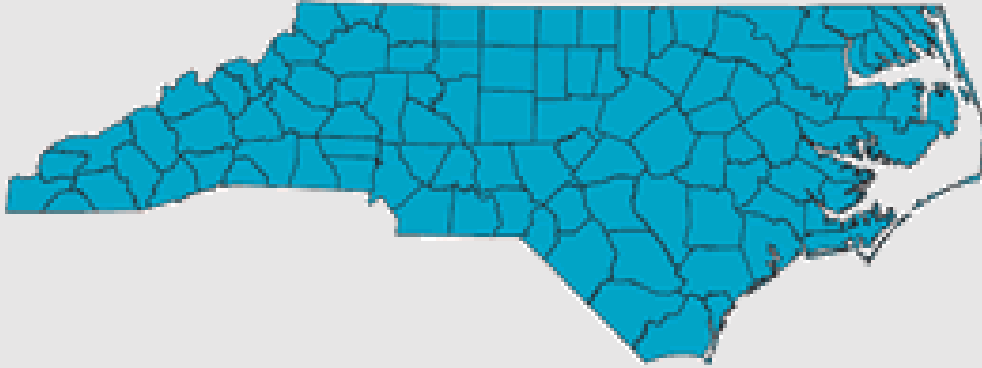


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Green Frog

Lithobates clamitans



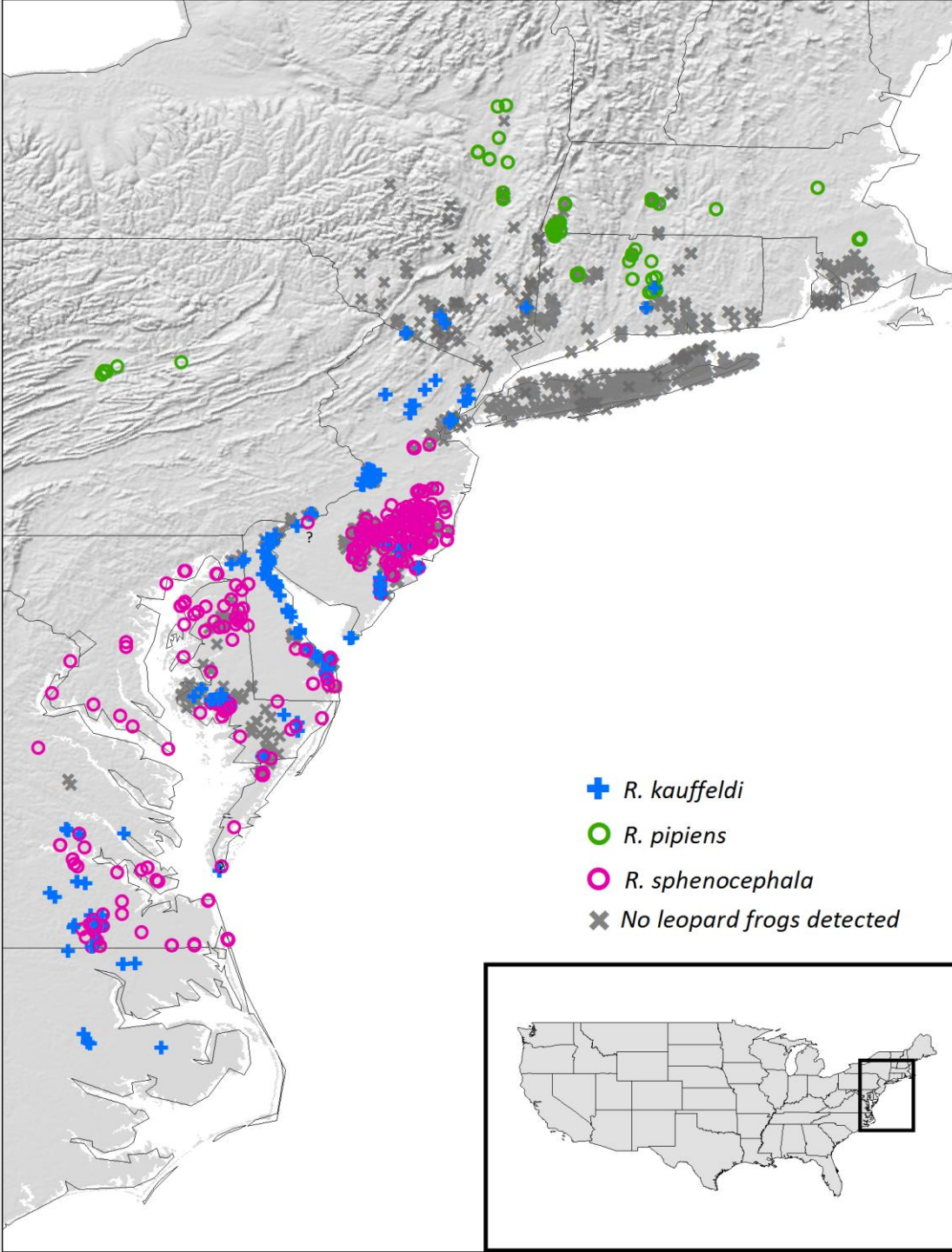
April-August

Atlantic Coast Leopard Frog

Lithobates kauffeldi



Atlantic Coast Leopard Frog *Lithobates kauffeldi*



Schlesinger MD, Feinberg JA, Nazdrowicz NH, Kleopfer J, Beane JC, Bunnell JF, et al. (2018) Follow-up ecological studies for cryptic species discoveries: Decrypting the leopard frogs of the eastern U.S. PLoS ONE 13(11): e0205805. <https://doi.org/10.1371/journal.pone.0205805>

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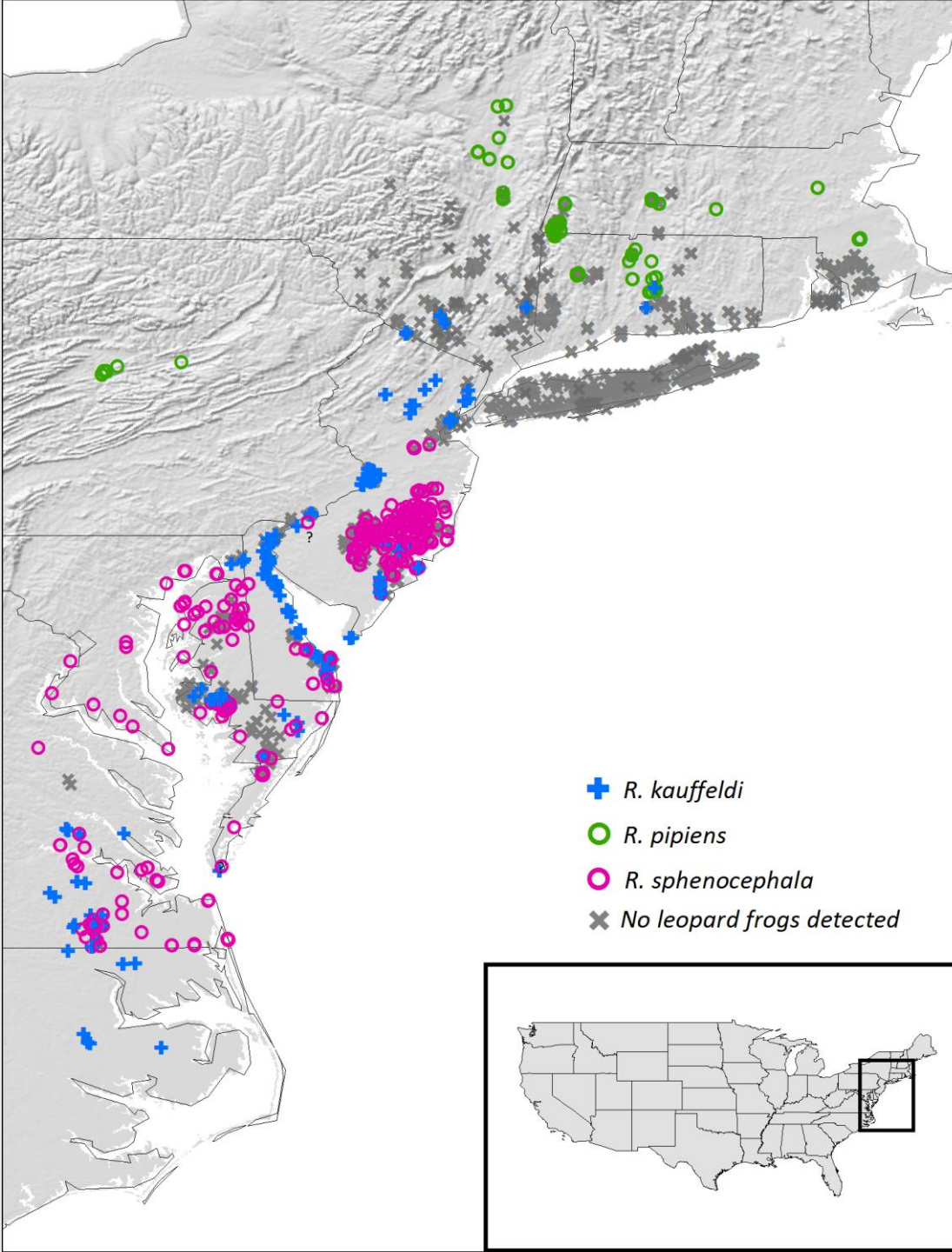
Fowler's Toad

Anaxyrus fowleri



Photo by Todd Pierson

Atlantic Coast Leopard Frog *Lithobates kauffeldi*



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Fowler's Toad

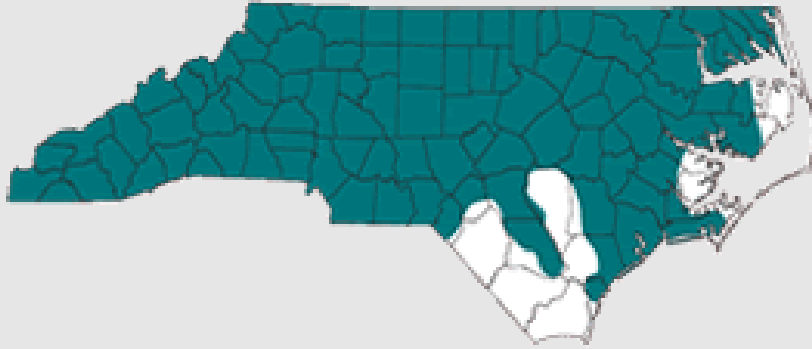
Anaxyrus fowleri



Photo by Todd Pierson

Fowler's Toad

Anaxyrus fowleri



April-July

Oak Toad

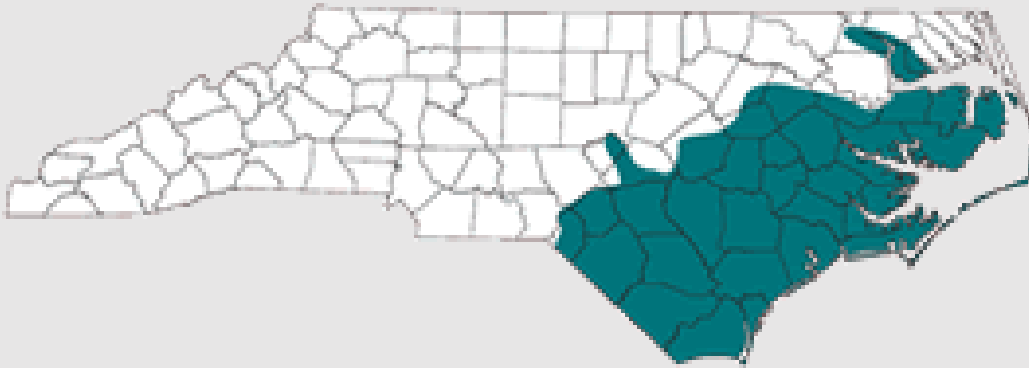
Anaxyrus quercicus



Photo by Kevin Stohlgren

Oak Toad

Anaxyrus quercicus



April-August

Invasive Species



Dealing with Fire Ants

- Native ants are one of the best defenses, as they will compete for resources and keep fire ants from spreading. Ensure you have fire ants before treating a mound.
- Pour boiling water on the mound in the early morning or after a rain storm, the ants are more likely to be high in the mound during these times.
- Mix orange oil and dish soap with water, pour on mound.
- Organically approved drenches and granular baits can be purchased



Eastern Narrowmouth Toad

Gastrophryne carolinensis

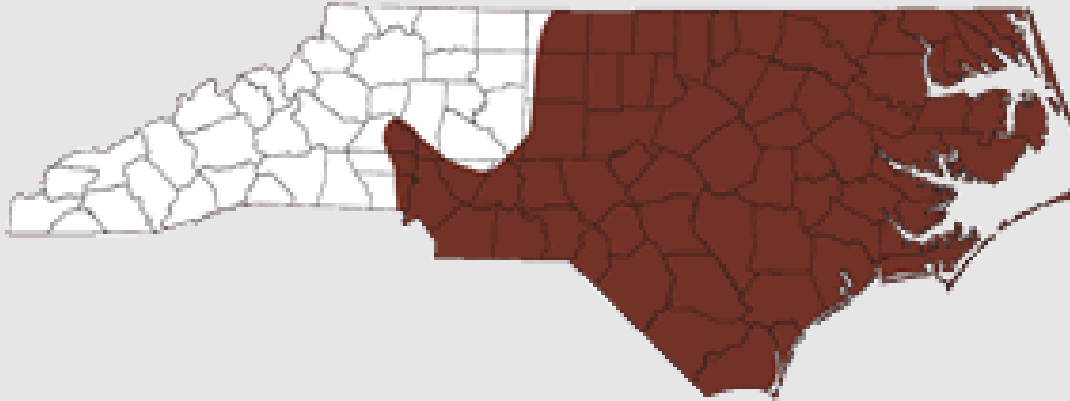


Photo by Aubrey M. Heupel



Eastern Narrowmouth Toad

Gastrophryne carolinensis



Year Round

Carolina Gopher Frog

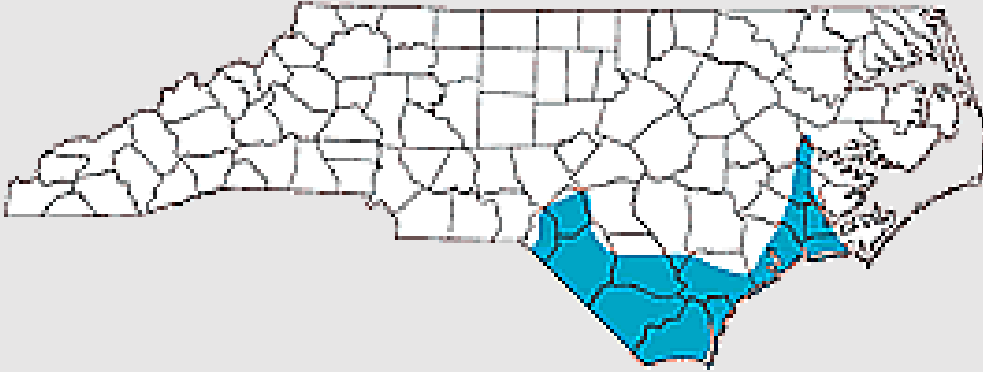
Lithobates capito



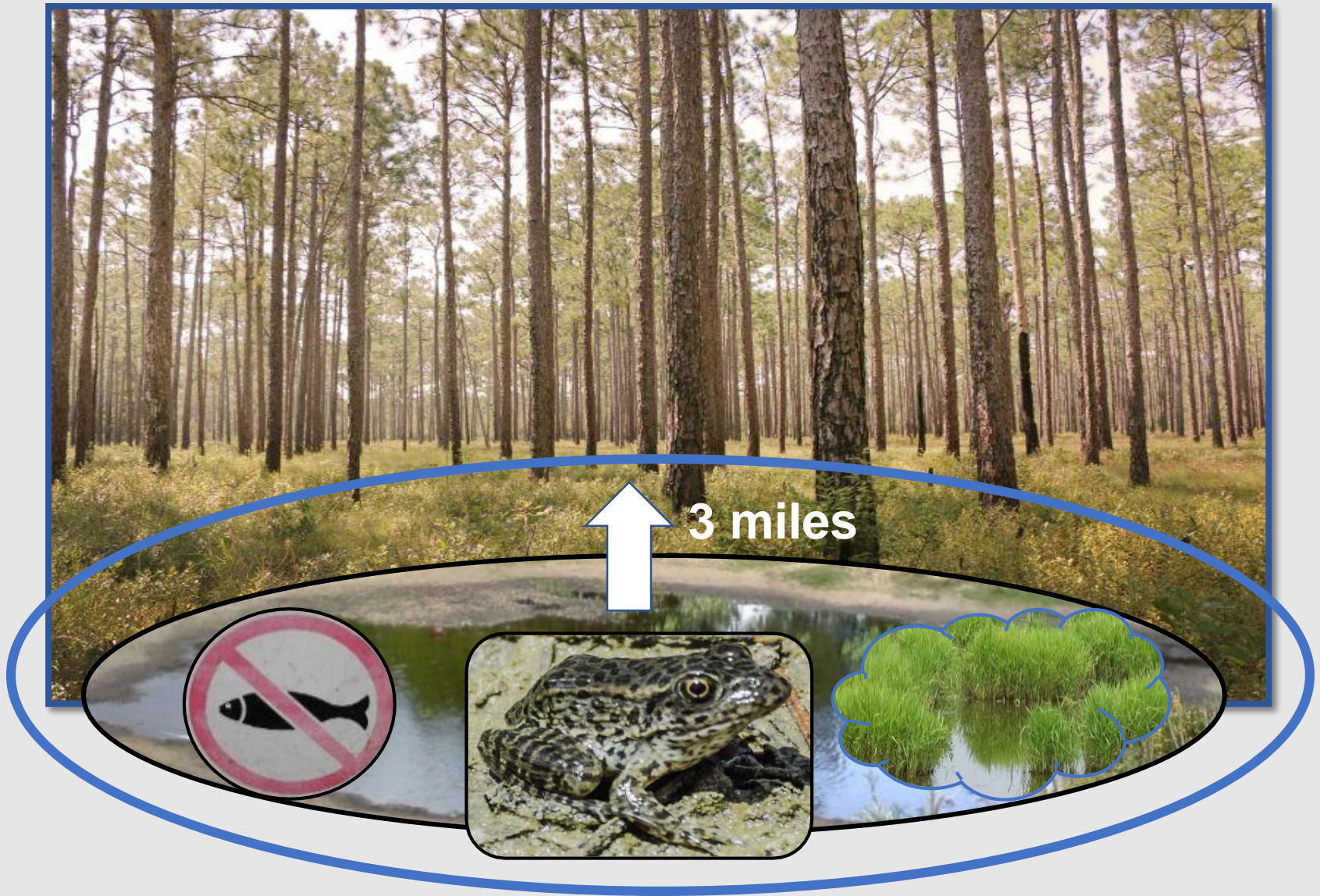
Photo by Kevin Stohlgren

Carolina Gopher Frog

Rana (Lithobates) capito



February- April



Habitat Loss



NORTH•CAROLINA
AQUARIUM
at Fort Fisher



North Carolina



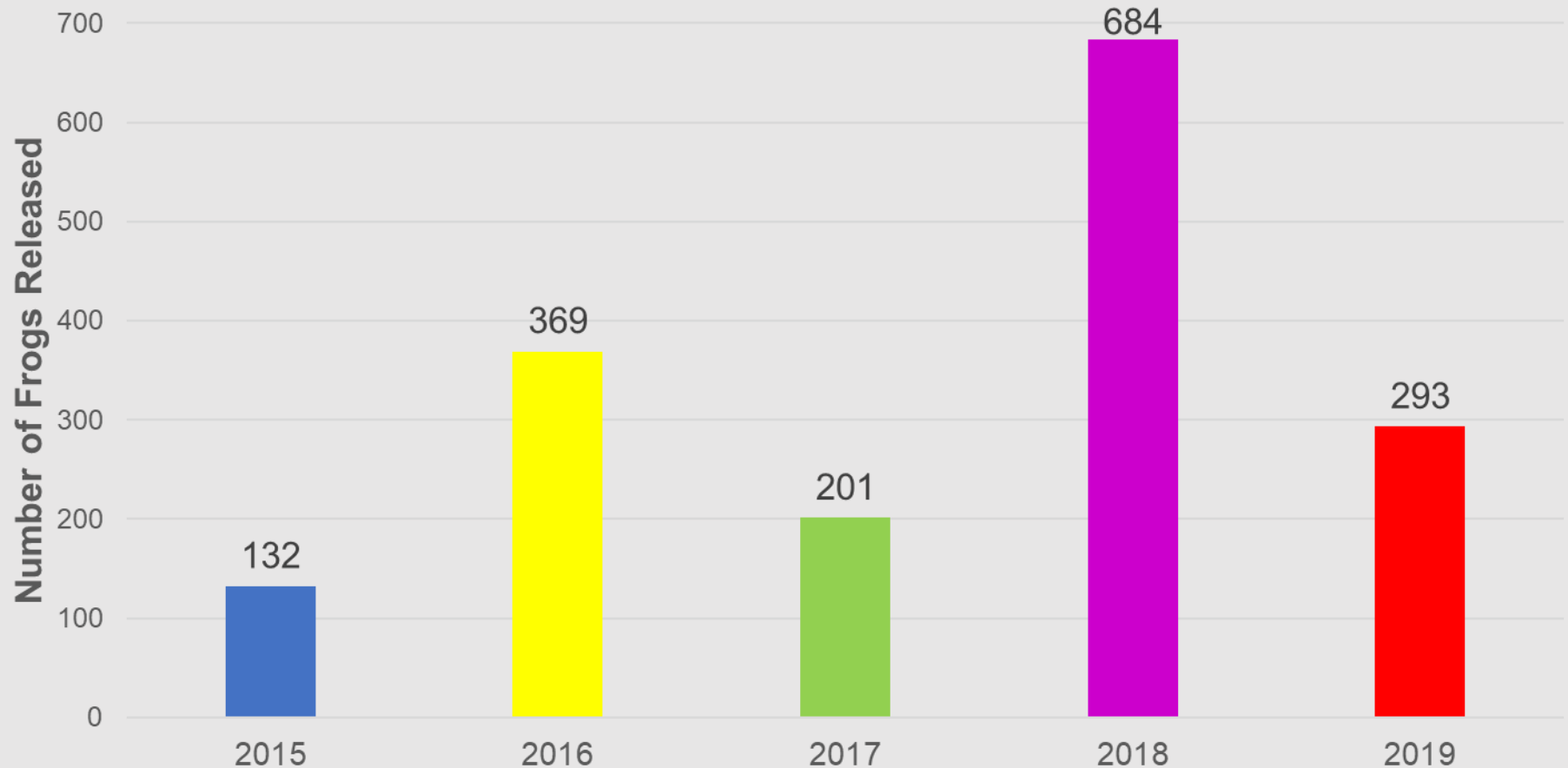
Wild vs. Aquarium Care:



Wild vs. Aquarium Care:



Gopher Frog Conservation Efforts:



Since 2015, the North Carolina Aquarium at Fort Fisher has released a total of 1659 frogs through the Gopher frog head start program.

Wetlands

- Frogs and toads need water to breed, so FrogWatch USA data is collected at wetlands
- Wetlands are defined by three characteristics:
 - The presence of plants that are known to grow in saturated conditions
 - Soils that lack oxygen
 - Water at or near the surface during some part of the growing season.



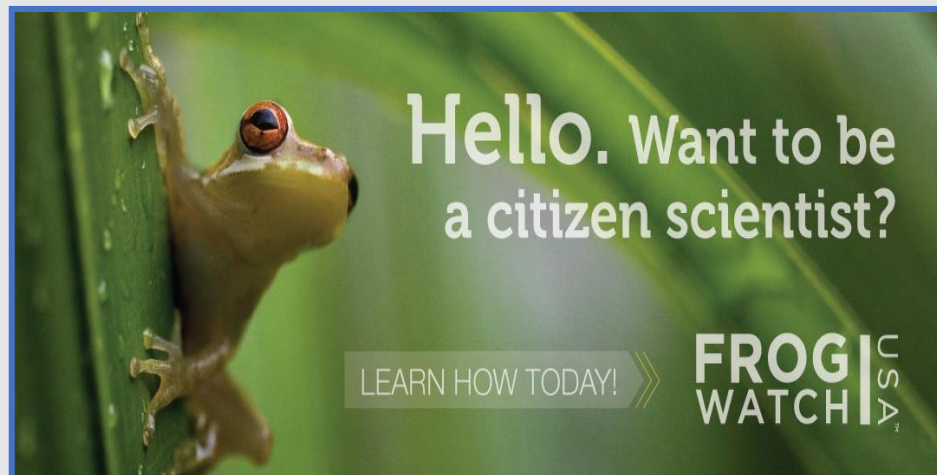
Citizen Science

- A research collaboration between scientists and volunteers
- Expands opportunities for scientific data collection, while providing access to scientific information to community members
- Appropriate for large-scale, long term data



FrogWatch USA

- The Association of Zoos and Aquariums' (AZA) flagship citizen science program
- Began in 1998 - over 22 years of data!
- Collects data on frog and toad breeding calls
 - Monitoring Season: February-August
 - Monitor 30 minutes after sunset
 - Monitor at least 4 times per season



FrogWatch Impacts

Volunteers from the FrogWatch Researchers of Greenville Zoo (FROGZ) chapter successfully petitioned South Carolina state leaders to grant Wildlife Sanctuary status to Lake Conestee Nature Park—a park with two registered FrogWatch USA monitoring sites.



FrogWatch Impacts

Alaska FrogWatch USA chapter is helping to determine the range of Wood Frogs. As volunteers report findings, University of Alaska Fairbanks graduate students travel to reported locations for verification, and are hoping to establish a clear northern boundary for the species.



Calling Amphibian Survey Program



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CITIZEN SCIENTISTS ARE

USING SCIENCE TO ADDRESS
LOCAL AND GLOBAL PROBLEMS



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Task Submit a weekly survey

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Come and Participate



CONSULT LOCAL RESOURCES

- Southeastern Species

- Frogs and Toads of North Carolina:

- http://www.herpsofnc.org/herps_of_NC/anurans/anurans.html

- Frogs and Toads of South Carolina and Georgia:

- <http://srelherp.uga.edu/anurans/index.htm>

- USGS Southeast Ecological Science Center - Anura:

- http://fl.biology.usgs.gov/herps/Frogs_and_Toads/frogs_and_toads.html

- NC PARC (NC Partnership for Amphibian and Reptile Conservation)

- [Reptiles and Amphibians in your backyard](#)

- http://www.ncparc.org/pubs/Reptiles%20and%20Amphibians%20in%20Your%20Backyard_final.pdf

- Atlantic Coast Leopard Frog

- <http://www.plosone.org/annotation/listThread.action?root=83078>

Questions?



Thank you