

Monitoring Frogs

- Why monitor frogs?
- Frog monitoring
 - Calling Surveys
- FrogWatch USA
- The NC Calling Amphibian Survey Program

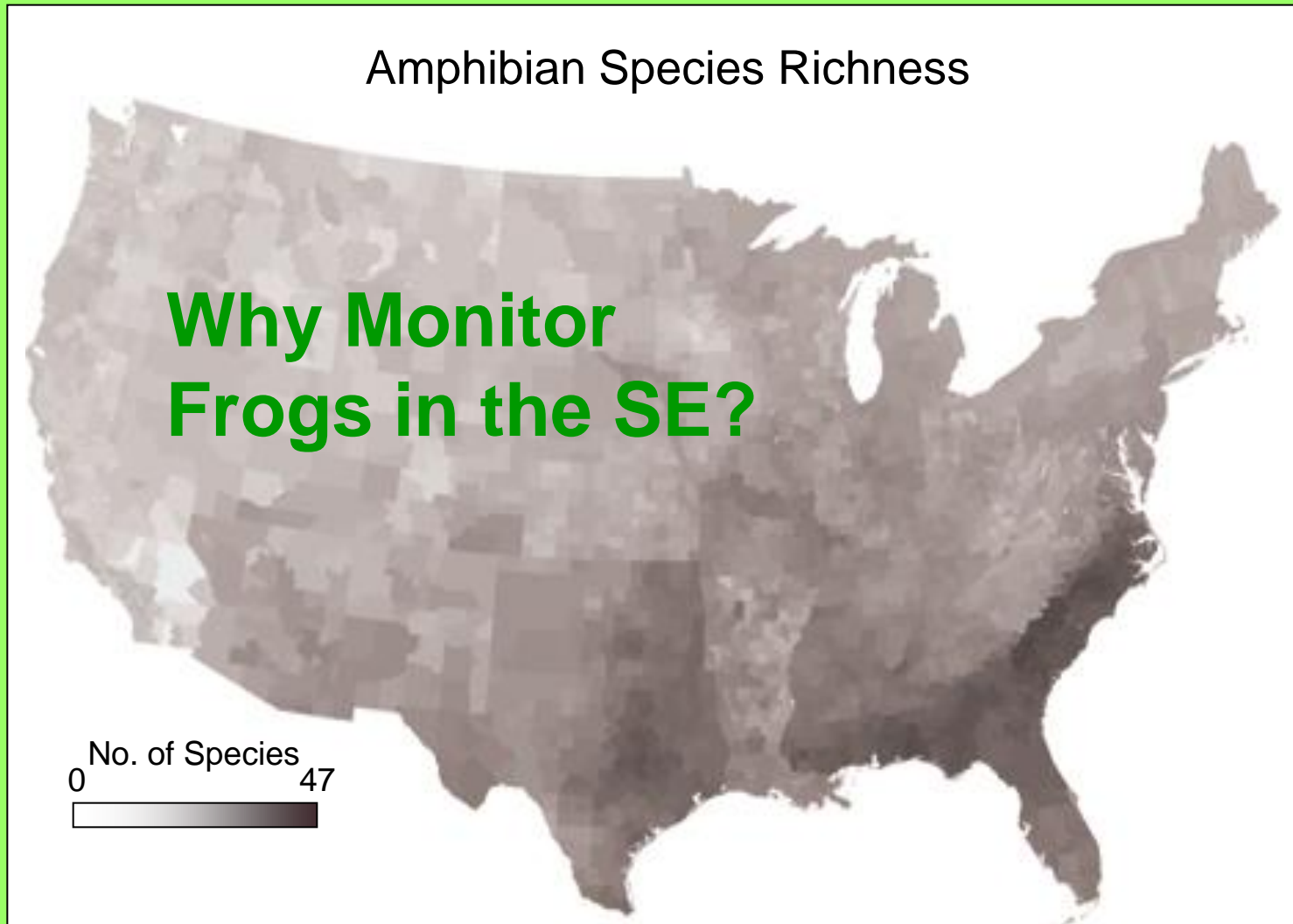


Why Monitor Frogs?

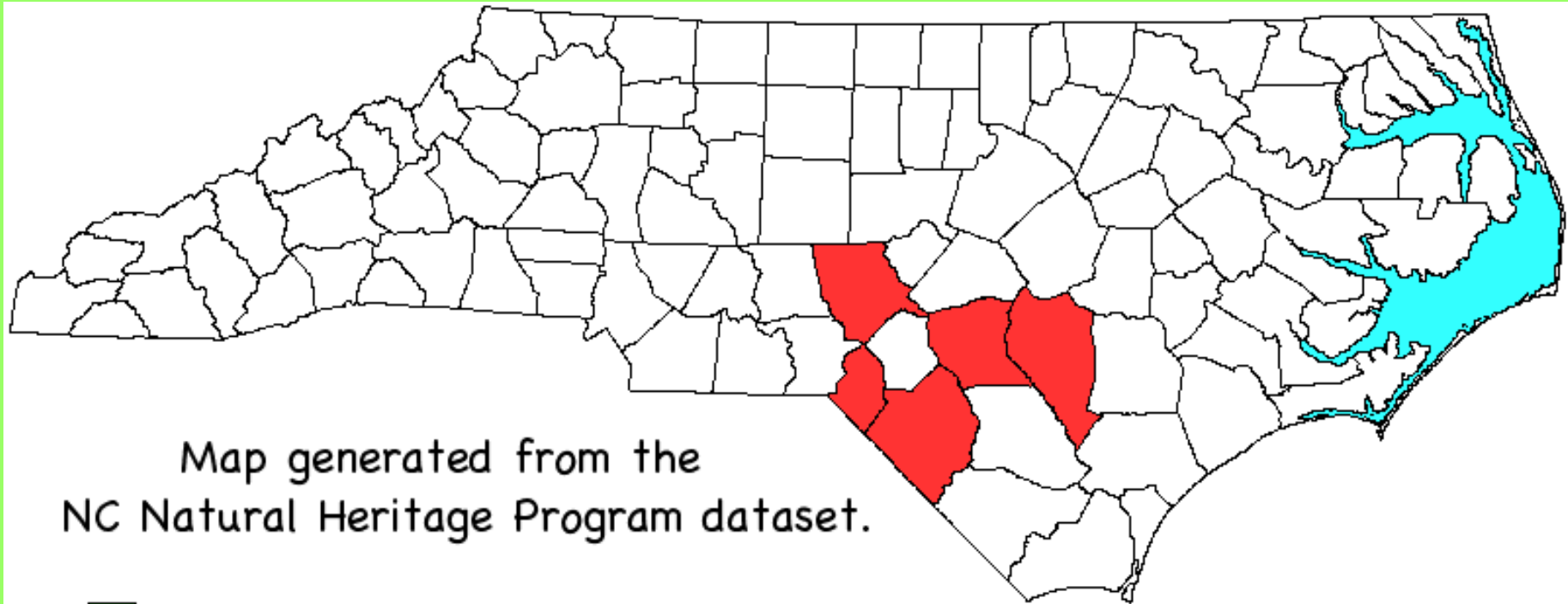





- Global Amphibian Declines
- Indicators of Environmental Integrity/Ecosystem Health
- Distribution poorly known
- Public Interest
- Somewhat easy to conduct surveys

National distribution patterns analysis.
Provided by EROS data center



The Unknowns...



-  Current: the element has been observed in the county recently.
-  Historic: the element is either extirpated from the county, or there have not been any recent surveys to verify its continued existence.
-  Obscure: the date the element was last observed in the county is uncertain.

River Frog Element Occurrence Map

A Comparison of Amphibian Species Richness and Land Cover Trends



A map of amphibian richness across the conterminous U.S. shows that the greatest variety

occurs in Southeastern U.S. From the USGS Land Cover Trends Project, we know that 20% of the land in the Middle Atlantic and Southeastern U.S. has been altered in the last 30 years. This has led to a decline in amphibian populations.

Number of Species



Plain



Frog Monitoring Generalities: Calling Surveys

- Designed to provide an index of amphibian populations via estimating relative abundance
 - Are frogs increasing, decreasing or remaining stable?
- Fill in distribution maps
- Can be applied across various spatial scales
- Understand breeding chronology
- Public education and outreach



Frog Monitoring - General Protocols

- Require observers to listen and document anurans calling
- Usually occur at night
- Designate a time to spend listening (e.g., 3, 5, 10 minutes)
- Sampling periods
- Repeatable – routes involved



U.S. Frog Monitoring Programs

- Local Programs – various local environmental centers
- State Programs – Wisconsin Frog and Toad Survey
- Regional Programs – Marsh Monitoring Program
- Continent-wide
 - North American Amphibian Monitoring Program (NAAMP); robust study design
 - FrogWatchUSA
 - Many local, state, and regional programs adopt NAAMP

NC is using NAAMP protocol for NC Calling

FrogWatch USA Monitoring Protocol Summary

Site Selection

Choose a site that is:

- Convenient to access weekly
- Quiet
- Safe for data collection in the evening
- Legally accessible

Site Registration

- Collect the following information about the site:
 - Type of habitat
 - Origin of wetland
 - Source or origin of water
 - Permanence of water
 - Use of land adjacent to wetland
 - Use of land within wetland
 - Latitude and longitude
- Submit the FrogWatch USA Site Registration form

Monitoring Protocol

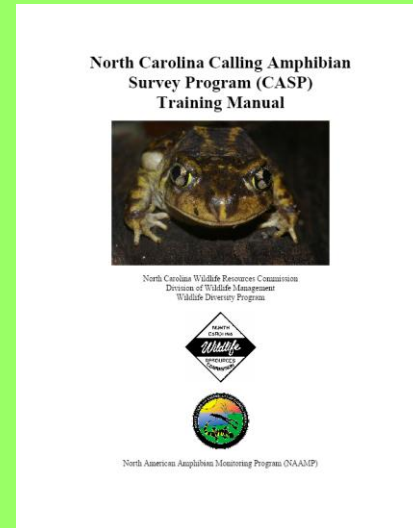
- Be quiet for at least 2 minutes before initiating the monitoring session so frogs and toads acclimate to your presence.
- Cup hands around your ears and listen quietly for *precisely* 3 minutes. Use a watch to time this duration accurately.
- Listen to, identify, and remember all breeding calls occurring in the session.
- If the monitoring session is interrupted by noise, restart it, including the 2 minute acclimation period.

Calling Intensity

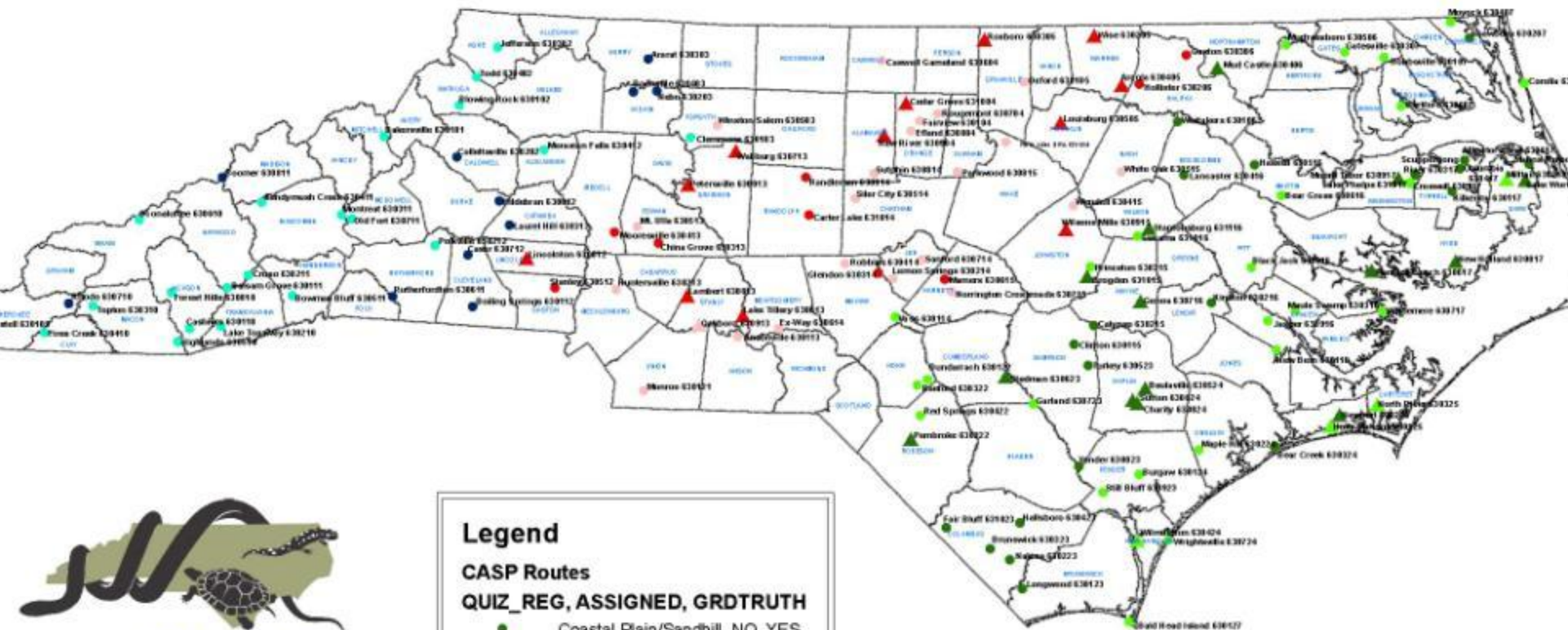
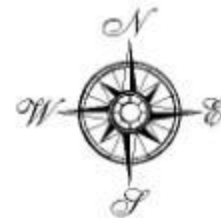
- 0 – No frogs or toads heard calling
- 1 – Individuals can be counted; there is space between calls
- 2 – Calls of individuals can be distinguished, but there is some overlapping of calls
- 3 – Full chorus, calls are constant, continuous, and overlapping

NAAMP/CASP Materials

- Volunteer-based
- Roadside stops on routes
- Surveyed 3-4 times per year
- Volunteers receive:
 - CASP Training Manual, datasheets, volunteer sign, letter of explanation, NAAMP unified protocols, volunteer forms, NC anuran distribution maps, route maps, site forms if ground-truthing



North Carolina Calling Amphibian Survey Program (CASP) 01/27/2011



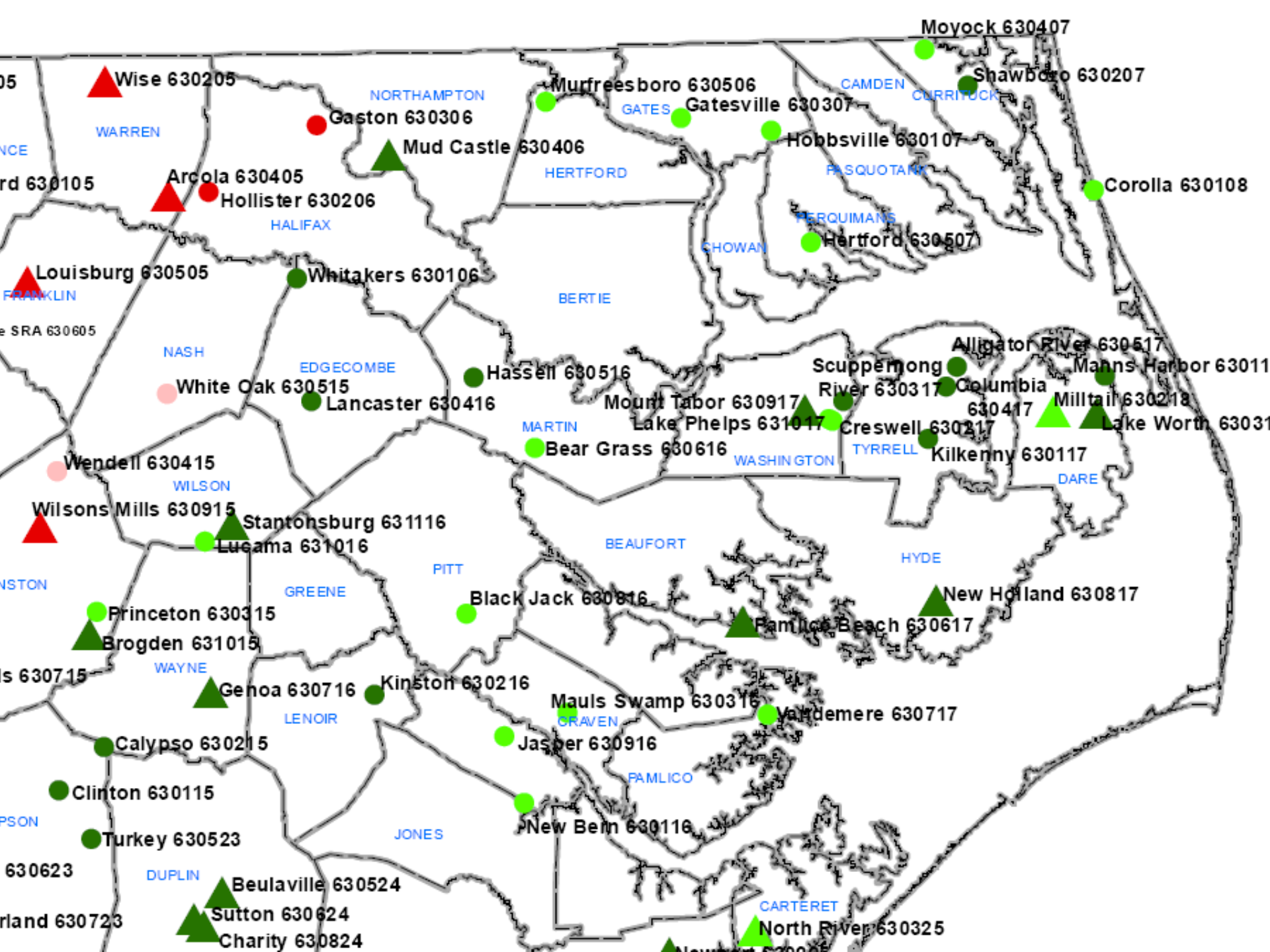
Legend

CASP Routes

QUIZ_REG, ASSIGNED, GRDTRUTH

- Coastal Plain/Sandhill, NO, YES
- Coastal Plain/Sandhill, YES, YES
- ▲ Coastal Plain/Sandhill, NO, NO
- ▲ Coastal Plain/Sandhill, YES, NO
- Mountains, NO, YES
- Mountains, YES, YES
- ▲ Mountains, YES, NO
- Piedmont, NO, YES
- Piedmont, YES, YES
- ▲ Piedmont, NO, NO
- ▲ Piedmont, YES, NO







North Carolina CASP Routes Interactive Map

Use the map controls to navigate, or select a CASP Route or county:

Routes: Counties:





North Carolina CASP Routes Interactive Map

Use the map controls to navigate, or select a CASP Route or county:

Routes: Counties:

Map Hybrid Terrain

Still Bluff - #630923
[Detailed Route](#)
[Directions](#)
[PDF Map](#)
[Download Google Earth KML file](#)

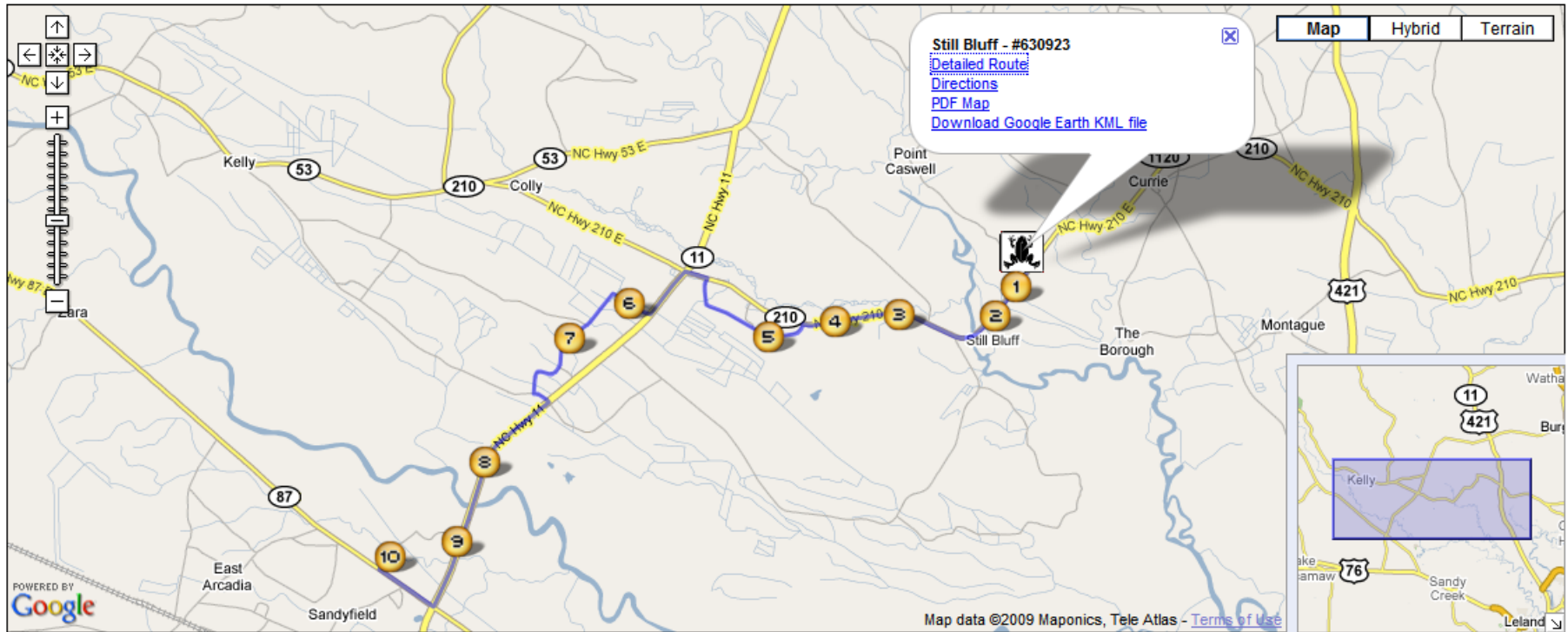
Map data ©2009 Tele Atlas - [Terms of Use](#)



North Carolina CASP Routes Interactive Map

Use the map controls to navigate, or select a CASP Route or county:

Routes: Still Bluff Counties: Select a County Reset Map



Still Bluff - #630923

Stop 1

Stop Id 30094
Stop Name 0.4 miles
Coordinates 34.4415519990001, -78.1333409999999

Still Bluff - #630923

Stop 1

Stop Id 30094
Stop Name 0.4 miles
Coordinates 34.4415519990001, -78.1333409999999
Notes Start at intersection of Point Caswell Rd. and NC 210. Travel SW on NC 210 for 0.4 miles and park on right shoulder djust before 1st guard rail. Black River FP

Stop 2

Stop Id 30095
Stop Name 0.9 miles
Coordinates 34.4355219990001, -78.1386639999999
Notes Continue SW on 210 for 0.5 miles and pull in forest road to park on left just past Calidonia Creek Rd. on right. Black River FP

Stop 3

Stop Id 30096
Stop Name 2.4 miles
Coordinates 34.435799999, -78.1623679999999
Notes Continue SW on NC 210 for 1.5 miles and park at entrance to logging road on right just after church, before mailbox and between two power poles. Colly Creek Floodplain

Stop 4

Stop Id 30097
Stop Name 3.3 miles
Coordinates 34.434292999, -78.1781339999999
Notes Continue W on NC 210. Go 0.9 miles to culverted ditch with guard rail. Park on right just past guard rail (careful)

Stop 5

Stop Id 30098
Stop Name 4.2 miles
Coordinates 34.4313999990001, -78.1944829999999
Notes Continue W on NC 210. Fo 0.4 miles and turn left on Bethel Church Rd. Go 0.5 miles to low place in pocosin, park on right shoulder

Stop 6

Stop Id 30099
Stop Name 7.0 miles
Coordinates 34.4380409990001, -78.228788
Notes Continue W on Bethel Church Rd. for 1.4 miles. Turn left on NC 11 and go 0.8 miles and turn left on to Greens Dairy (SR1543). Go 0.3 miles to culverted ditch.

Stop 7

Stop Id 30100
Stop Name 8.1 miles
Coordinates 34.431046999, -78.2435819999999
Notes Continue on Green Dairy 1.1 miles to culvert on paved part. Park after culvert warning sign on right shoulder. Ditch through IP land.

Stop 8

Stop Id 30101
Stop Name 10.6 miles

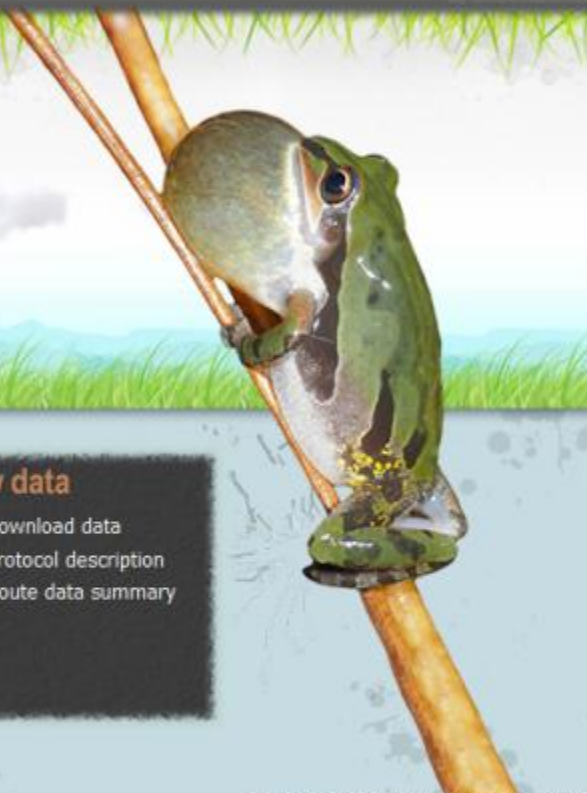


USGS Home
Contact USGS
Search USGS

Patuxent Wildlife Research Center - North American Amphibian Monitoring Program



North American Amphibian Monitoring Program



current volunteer

- ⇒ Enter data
- ⇒ Go to Frog Quiz

potential volunteer

- ⇒ Survey description
- ⇒ Coordinator contact
- ⇒ Route availability map
- ⇒ Go to Frog Quiz

data & analysis

- ⇒ Species detection map
- ⇒ Species richness map

raw data

- ⇒ Download data
- ⇒ Protocol description
- ⇒ Route data summary

Accessibility FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey | Patuxent Wildlife Research Center

URL: <http://www.pwrc.usgs.gov/naamp/>
Contact: [Linda Weir, naamp@usgs.gov](mailto:Linda>Weir,naamp@usgs.gov)
Last Modified: 2/25/2009



Fusebox debugging:

Time	Category	Message	Count
------	----------	---------	-------

Done

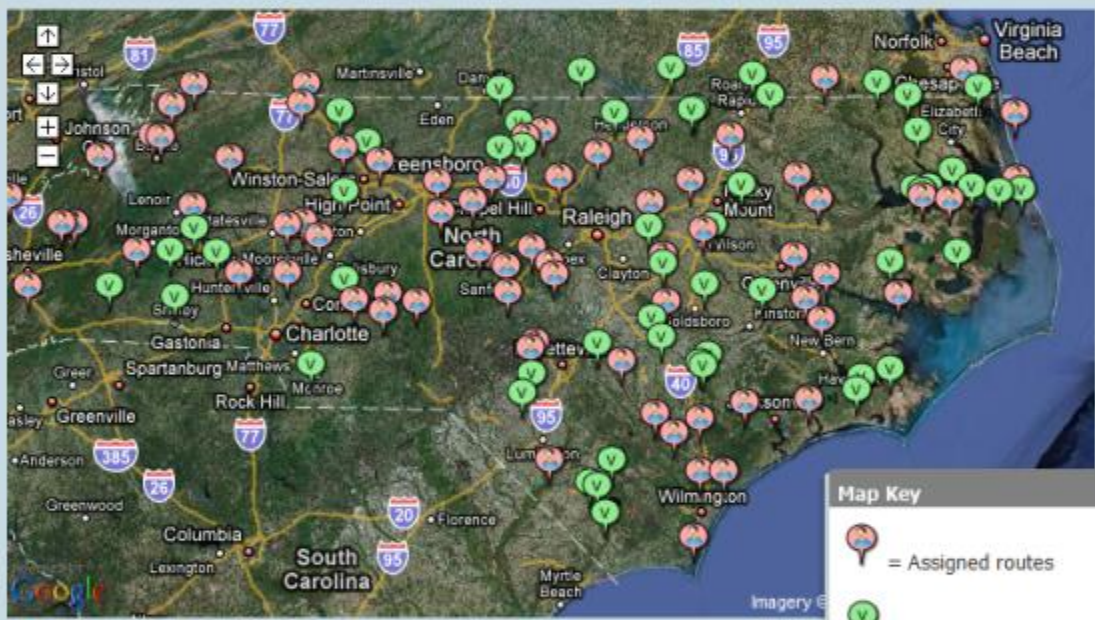


Route availability map for 2009



- Select state
- Kentucky
 - Louisiana
 - Maine
 - Maryland
 - Massachusetts
 - Michigan
 - Minnesota
 - Mississippi
 - Missouri
 - New Hampshire
 - New Jersey
 - New York
 - North Carolina**
 - Pennsylvania
 - South Carolina
 - Tennessee
 - Texas
 - Vermont
 - Virginia
 - West Virginia

North Carolina route availability map



Map Key


- = Assigned routes
- = Vacant routes

Show Map Contact Info Home



Before you survey...

<http://www.pwrc.usgs.gov/frogquiz/>



Address <http://www.pwrc.usgs.gov/frogquiz/>

USGS
science for a changing world
Patuxent Wildlife Research Center

[frog call lookup](#) | [acknowledgments](#)

Public Quiz NAAMP Quiz **Frogwatch USA Quiz** Parks & Refuges Quiz

USGS Frog Quizzes

Welcome to the Frog Call Quiz website. This website provides a resource for learning breeding calls of frogs and toads in the eastern United States. To listen to the calls of species in your state use the frog call lookup option.

To test your ability to identify frog calls in your state, use the Public Quiz option. If you are an observer in an amphibian monitoring program (Frogwatch USA, NAAMP, Parks/Refuges) you may select your program's quiz from above.

U.S. Department of Interior | U.S. Geological Survey | Patuxent Wildlife Research Center
<http://www.pwrc.usgs.gov/frogquiz/> Website comments? Contact: [Linda Wiley](#)
Last Modified: 8/15/2005 | [USGS Privacy Statement](#)

Sampling Protocols

- NC has 3 sampling windows
 - Run 1: 1/15 – 2/28
 - Run 2: 3/15 – 4/30
 - Run 3: 5/15 – 6/30
- Sampling conditions
 - 30 minutes after sunset
 - Must end before 1 am
 - Wind level less than 12 mph (Beaufort scale “3” or lower)
 - No heavy rain
 - Minimum Temperature
 - Run 1: > 42F
 - Run 2: > 50F
 - Run 3: > 55F



Sampling Protocols

- Data Collection
 - All data must be collected in one night by only one observer
 - Conduct survey for 5 minutes noting start and end time
 - Sky, Wind, temperature
- Index of abundance
 - 1 = Individuals can be counted; there is space between calls
 - 2 = Calls of individuals can be distinguished but there is some overlapping of calls
 - 3 = Full chorus, calls are constant, continuous and overlapping
- Record any background noise, noting number of passing cars
- After survey, volunteers can enter data online (Due by September 1st)
- CASP will maintain original datasheets

Old Species Name	New Species Name	Common Name
<i>Bufo americanus</i>	<i>Anaxyrus americanus</i>	American toad
<i>Bufo fowleri</i>	<i>Anaxyrus fowleri</i>	Fowler's toad
<i>Bufo quercicus</i>	<i>Anaxyrus quercicus</i>	oak toad
<i>Bufo terrestris</i>	<i>Anaxyrus terrestris</i>	southern toad
<i>Pseudacris feriarum</i>	<i>Pseudacris feriarum</i>	upland chorus frog
<i>Rana capito</i>	<i>Lithobates capito</i>	gopher frog
<i>Rana catesbeiana</i>	<i>Lithobates catesbeianus</i>	American bullfrog
<i>Rana clamitans</i>	<i>Lithobates clamitans</i>	green frog
<i>Rana heckscheri</i>	<i>Lithobates heckscheri</i>	river frog
<i>Rana palustris</i>	<i>Lithobates palustris</i>	pickerel frog
<i>Rana sphenoccephala</i>	<i>Lithobates sphenoccephalus</i>	southern leopard frog
<i>Rana sylvatica</i>	<i>Lithobates sylvaticus</i>	wood frog
<i>Rana virgatipes</i>	<i>Lithobates virgatipes</i>	carpenter frog



SEP 19 2006