



SRST Meeting

January 30, 2007

- Progress to Date
- 2007 Amphibian Surveys

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Influence of feeding ecology on blood mercury concentrations in four species of turtles



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Snapping turtle
(*Chelydra serpentina*)



Stinkpot
(*Sternotherus odoratus*)

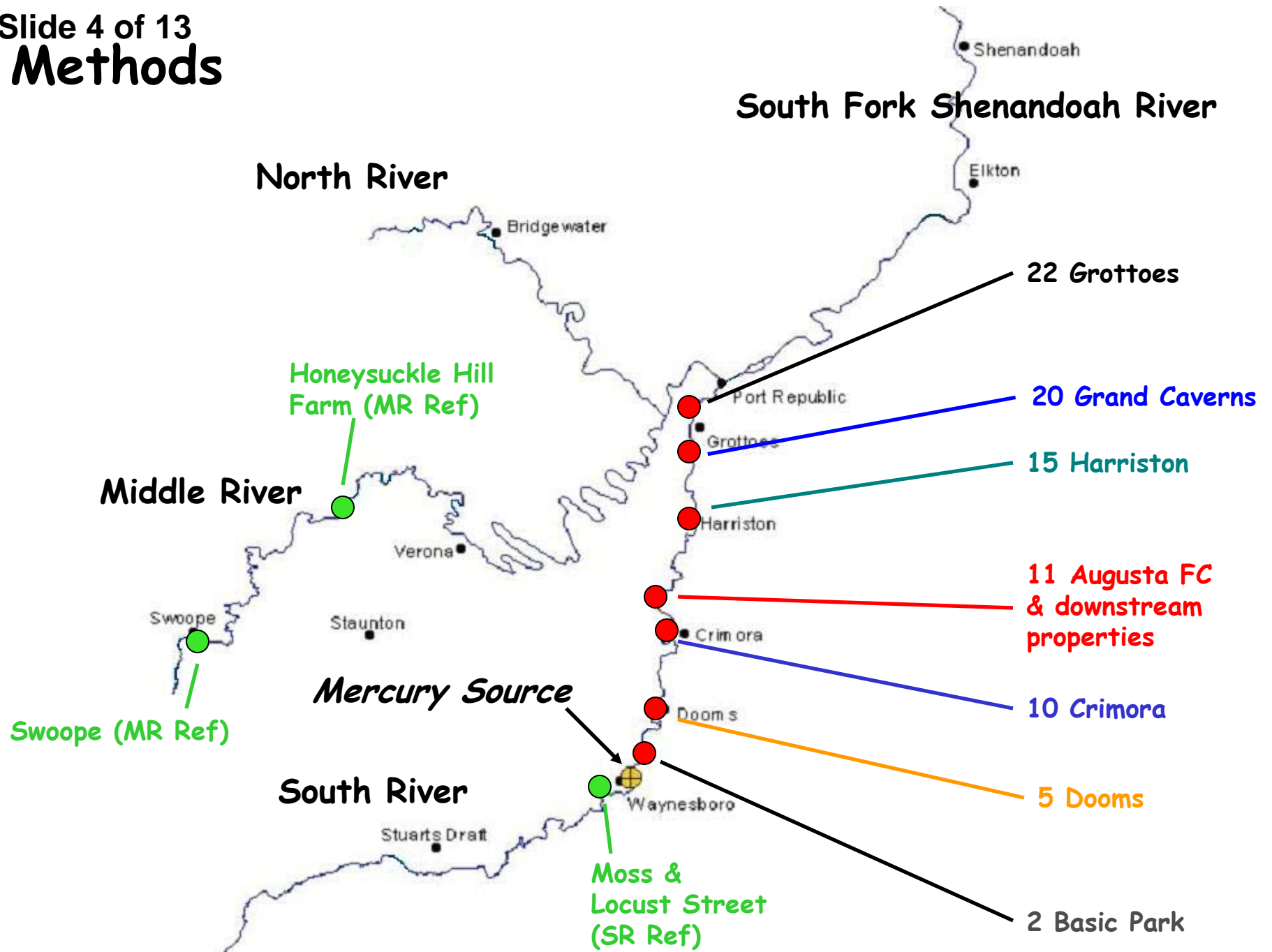


Painted Turtle
(*Chrysemys picta*)



Red Bellied Turtle
(*Pseudemys rubriventris*)

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Methods



Methods

Baited Hoop Traps

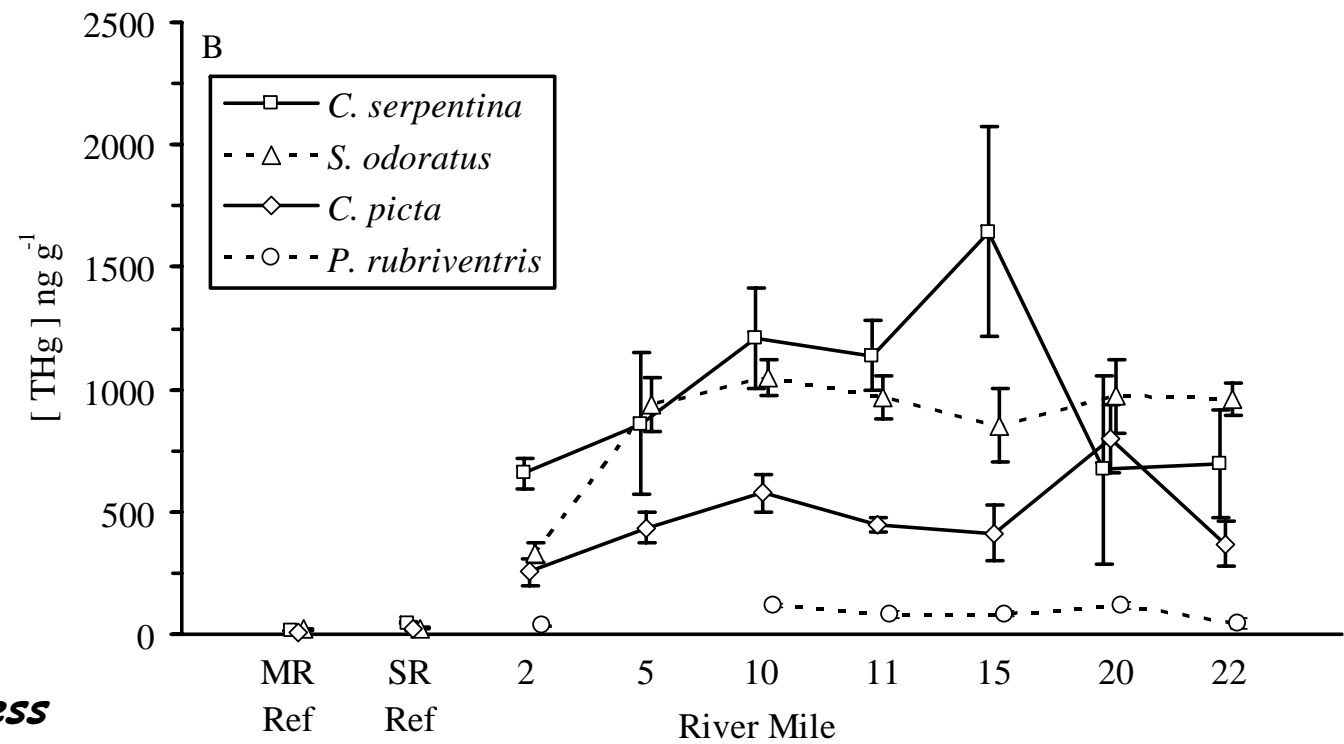
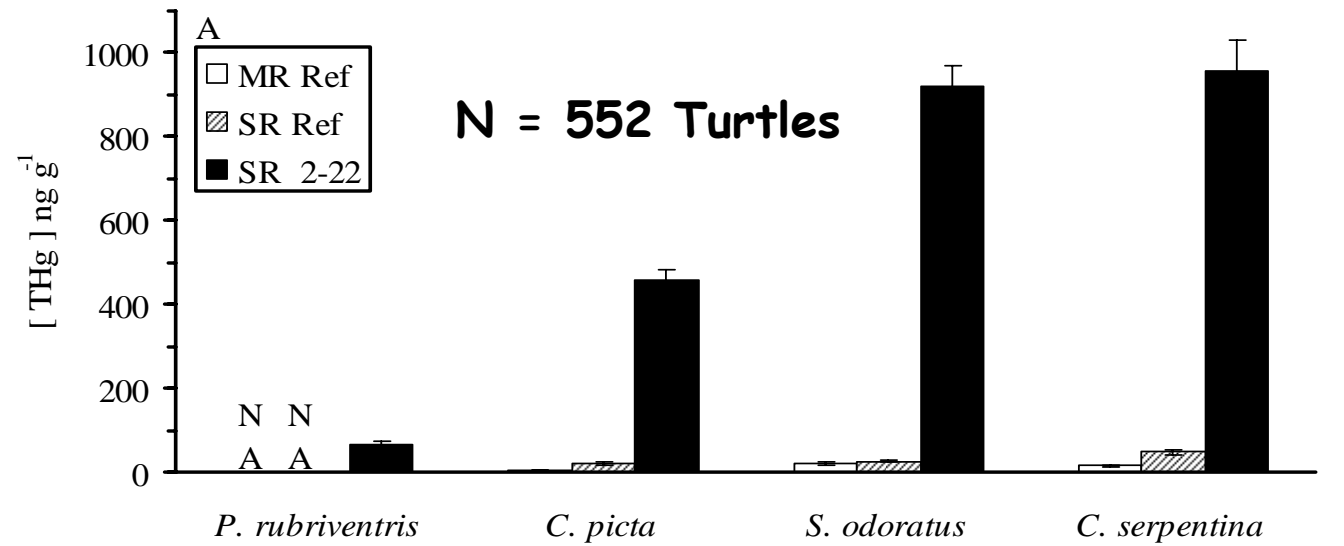
Mass, sex, carapace & plastron dimensions

1 ml blood from tail or cervical sinus

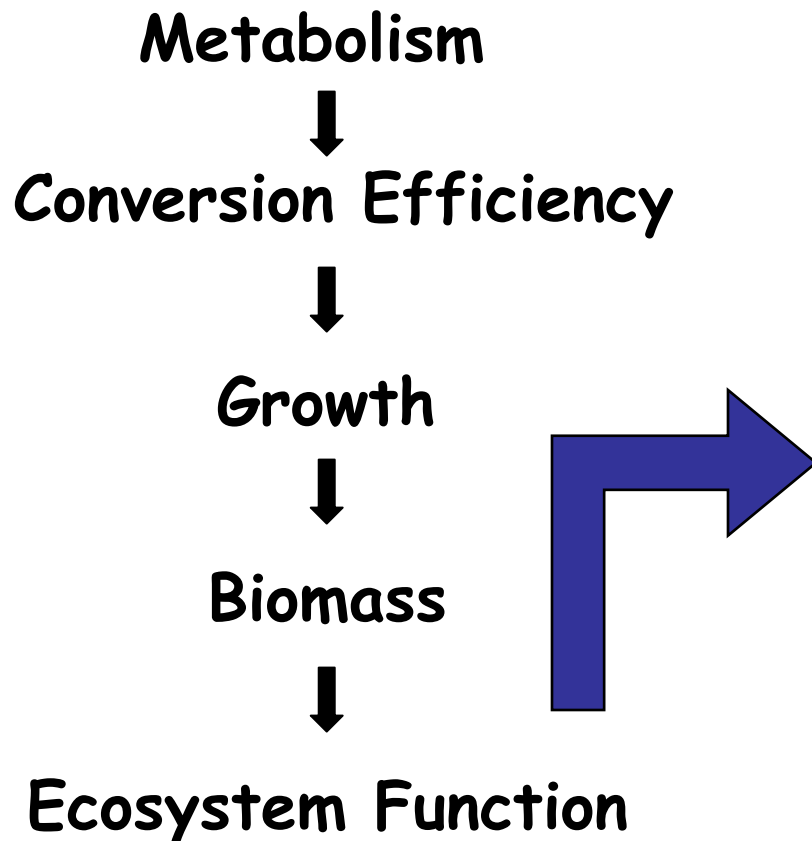
Permanently marked with unique ID



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The Importance of Amphibians in Ecosystems



**“One animal's growth
is another animal's food”**

Hill et al. (2004)

Pough (1980)

Herpetofauna have a different role than birds and mammals

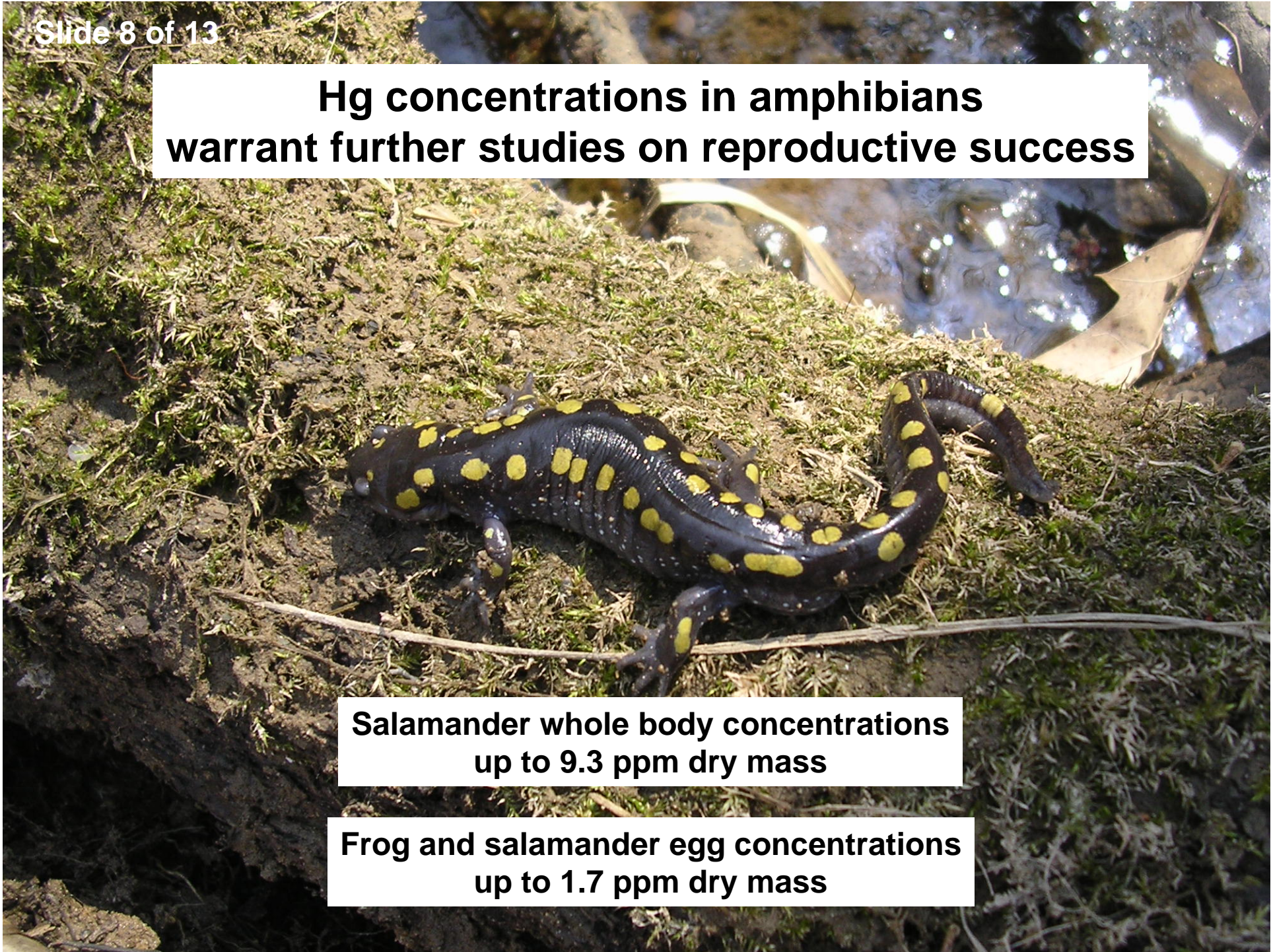
Endotherms are important in relation to the energy they consume (net PP)

Herps are important in terms of biomass they produce and make available to other trophic levels

**Hg concentrations in amphibians
warrant further studies on reproductive success**

**Salamander whole body concentrations
up to 9.3 ppm dry mass**

**Frog and salamander egg concentrations
up to 1.7 ppm dry mass**



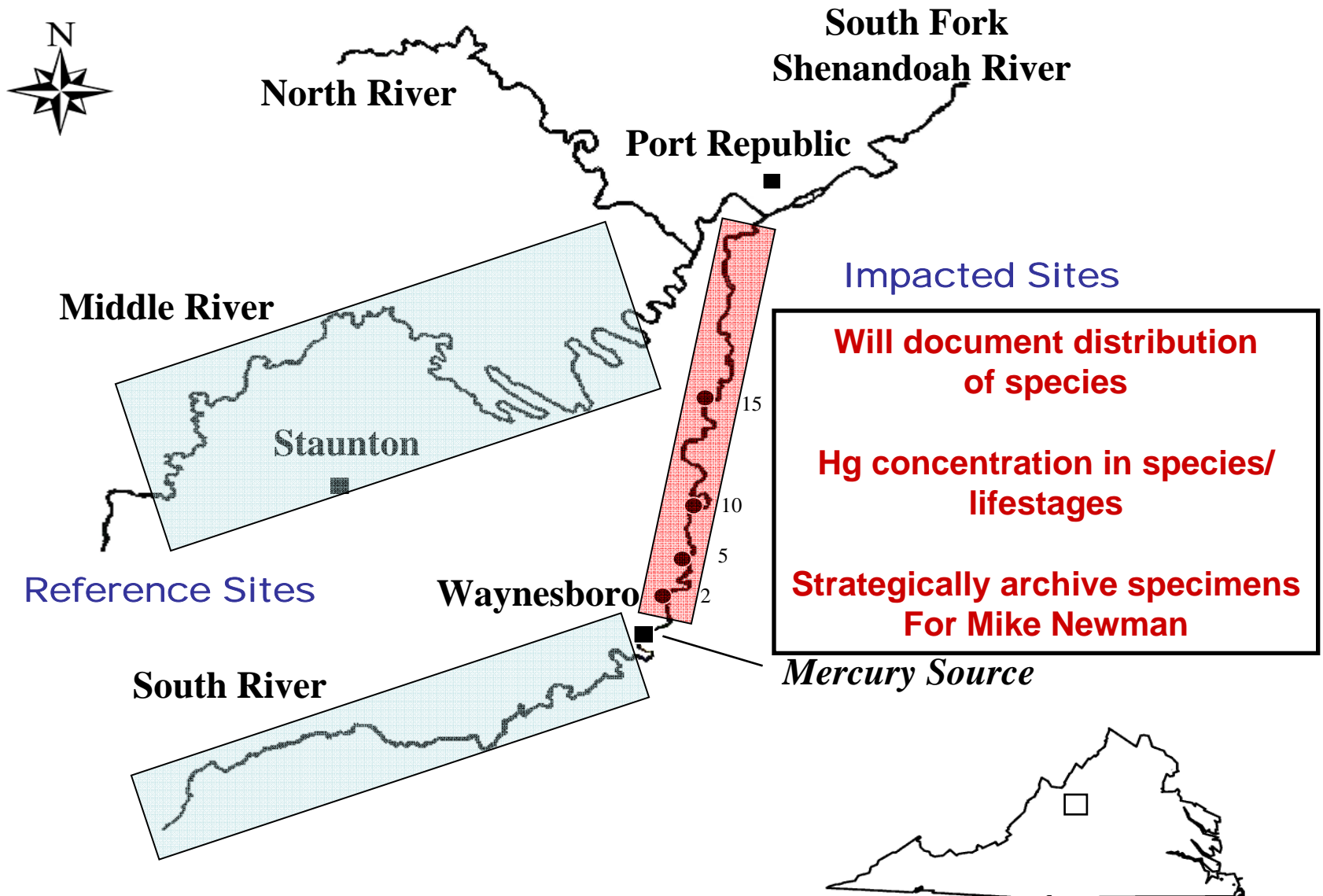
Target Study Species



Hypotheses

- 1) Amphibians accumulate high concentrations of Hg in their tissues, making them important to the fate and transport of Hg within the South River foodweb.**
- 2) Accumulation of Hg in amphibians follows the same spatial pattern as observed in other biota along the South River.**
- 3) Tail tissue is a useful nondestructive index of Hg exposure for amphibians that exhibit tail autonomy.**

South River Sampling Regions



Analytical methods

Total Hg:

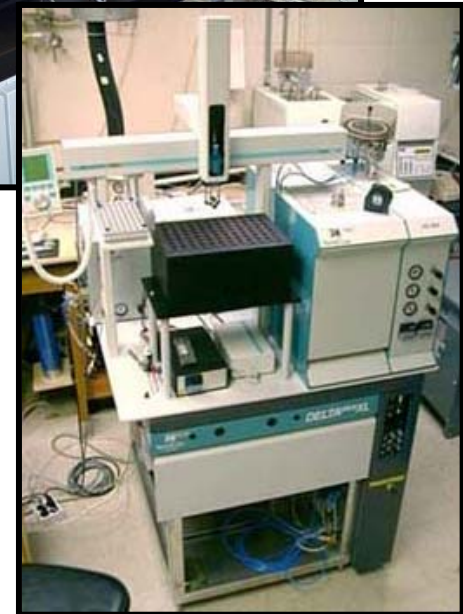
Direct Hg Analyzer

Methyl Hg/Total Hg:

gas chromatographic cold-vapor atomic
fluorescence spectrometry (GC-CVAFS)
& ICPMS

Selenium:

ICPMS



**Advanced Analytical Center
for Environmental Sciences**

Timeline

January: Preliminary Assessment
(wetlands full but no breeding activity yet)

February - May: Intensive surveys

June-July: Hg Analysis in South Carolina

Fall 07: Data Analysis & writing

October 07: Present Findings at SRST

December 07: Final report to DuPont