



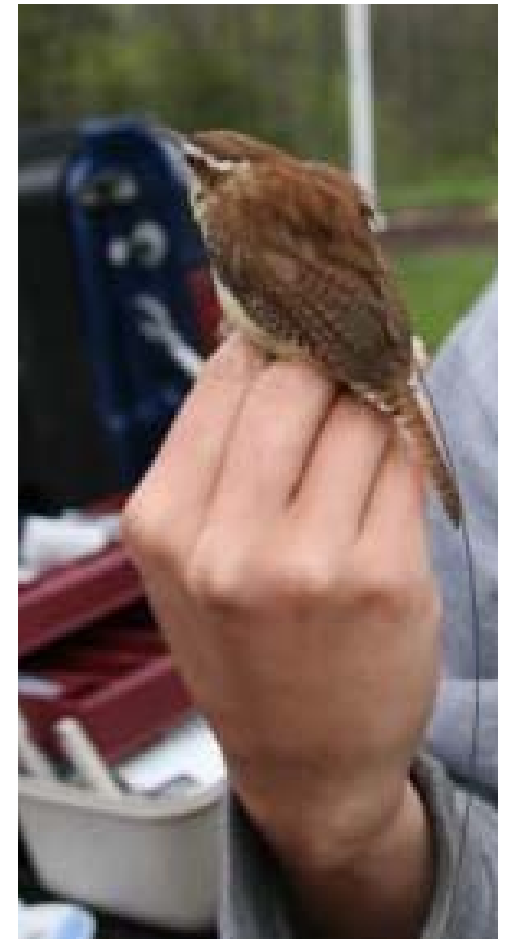
UPDATE

Bio Studies 2010



Carolina Wren Study

Purpose—to monitor reproductive success of Carolina wrens



Carolina Wren Study

Status:

- 13 Reference Sites—24 territories identified, 4 active nests (cameras)
- 12 Contaminated Sites—20 territories, 4 active nests (cameras)
- Over 600 nest boxes and tubes
- Transmitters on birds that have not yet nested (4)

Dosing Study

Purpose—to determine adverse effects levels for songbirds for various endpoints.



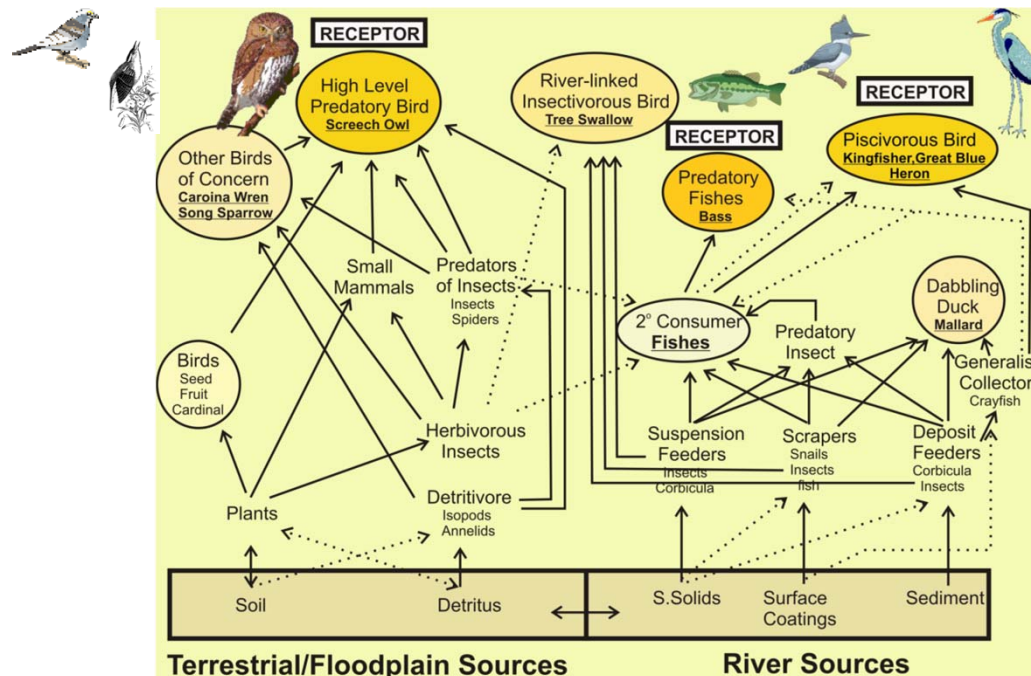
Dosing Study

Status:

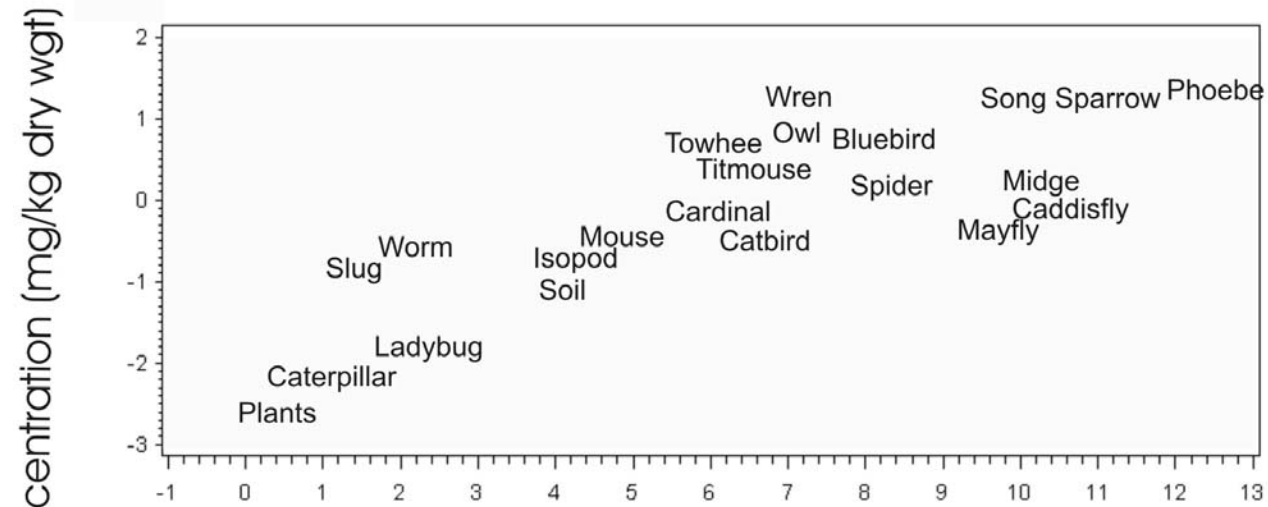
- First round of starlings and zebra finches dosing completed -- tissue Hg levels are on Ramos poster
- Second round of dosing has begun – will compare MeHg cysteine with MeHg chloride with finches
- Corticosterone, immune, and song data being analyzed (see Lemelin and Lewis posters)
- Cognition (spatial memory) apparatus completed this week (see Bessler poster)

Trophic Modeling Study

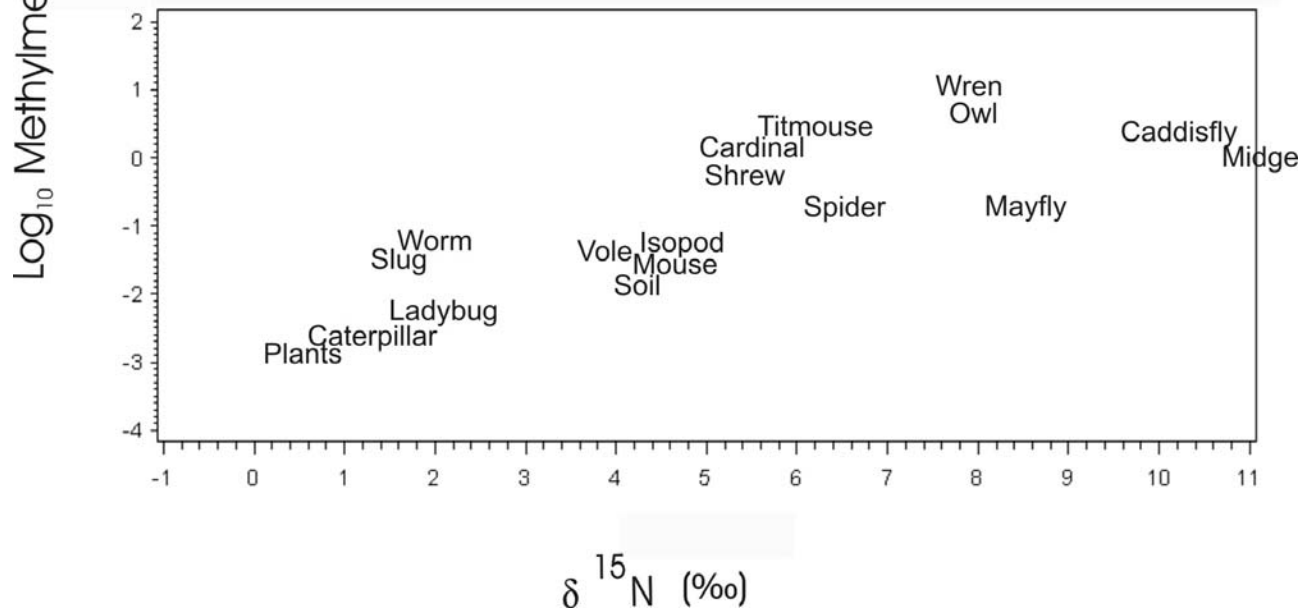
Purpose—To model biomagnification of the terrestrial floodplain system; combine trophic transfer models with expert elicitation to model exposure scenarios; synthesis report



Across River From Augusta Forestry Center (RM 11.8)



Grottoes Town Park (RM 22.4)

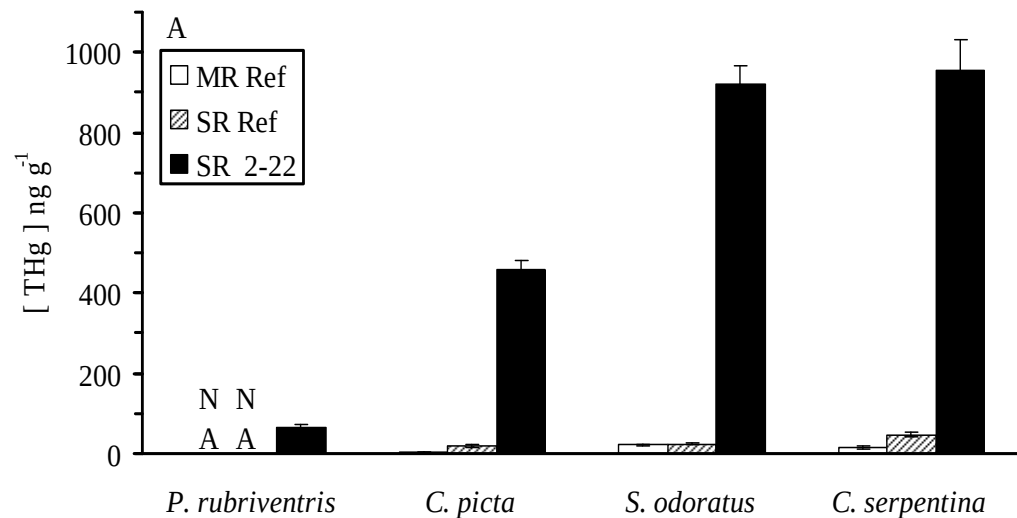


Trophic Modeling Study Status

- Sites selected—North Park and Grand Cavern (upstream end)
- First week of May
- Elicitation in progress

Turtle Study

Purpose—determine if Hg in the South River is affecting reproduction of snapping turtles; coordinate with VIMS trophic model study; quantify Hg in edible tissue of turtles



Turtle Study Status

- Preliminary 2009 study: developed muscle biopsy technique (proof of concept)
- Crew now in field part time, full sampling to begin late this month
- Turtle egg laying to begin any day now (should peak in early May)
- Request: If anyone finds a turtle on the road or nesting near the South River or Ref sites... please capture it, keep it cool/moist, & contact VT crew

Toad Study

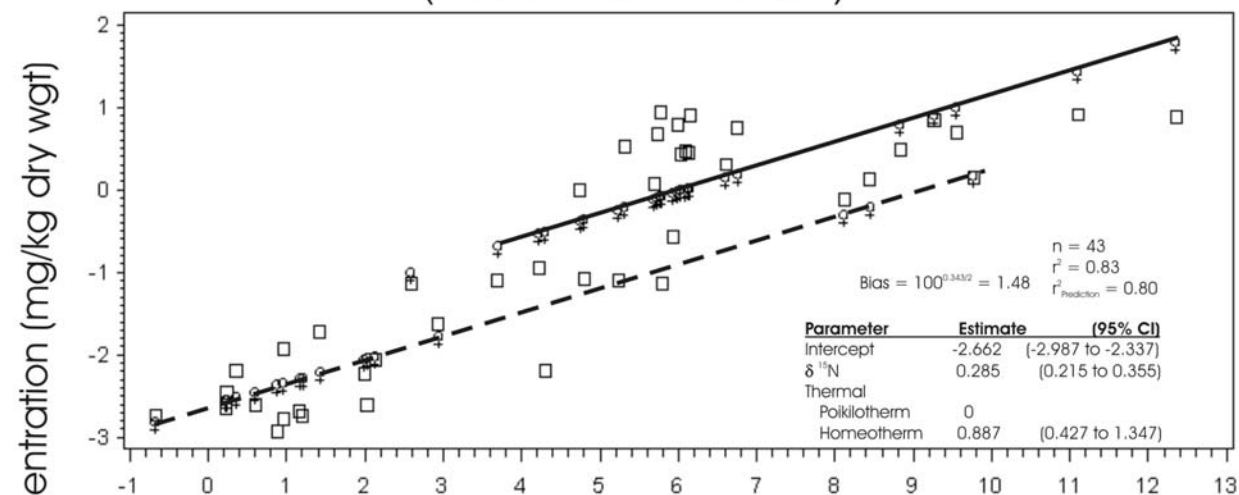
Purpose—experimental evaluation of
terrestrial survival of juvenile toads;
population modeling



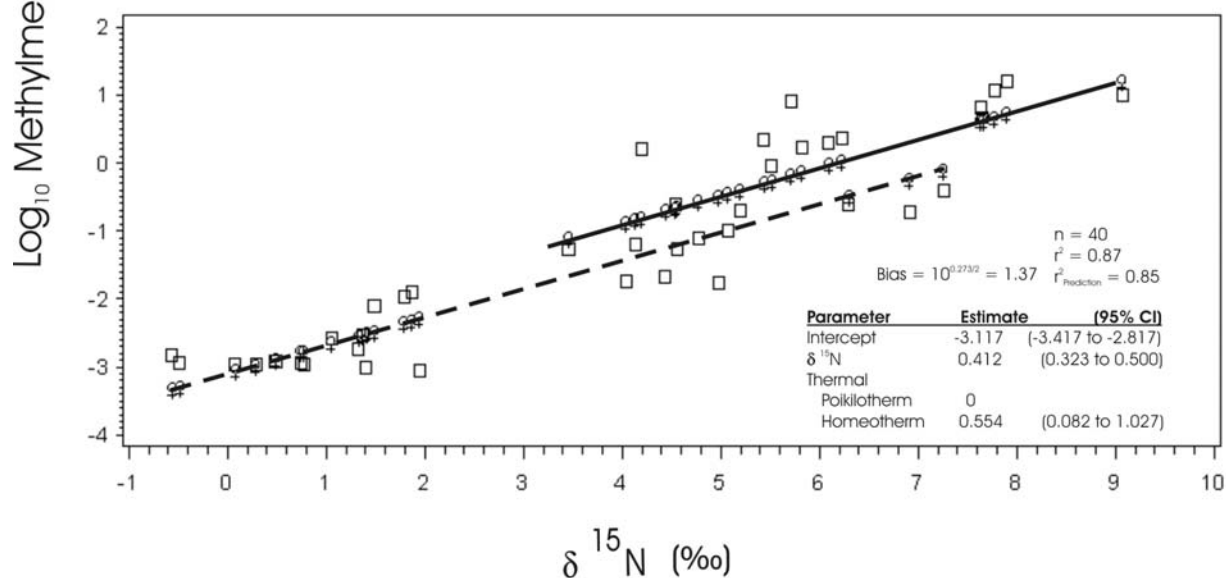
Toad Study Status

- All field data has been collected
- Terrestrial enclosure work will be completed by May 16th, 2010
- Currently interviewing post doc candidates for matrix modeling
- Modeling will be completed in early 2011, Final report in Spring of 2011
- Amphibians: 2 papers published, 2 papers in review, 4 papers in late stages of preparation, several others planned

Across River From Augusta Forestry Center (RM 11.8)
(Feather Data Excluded)

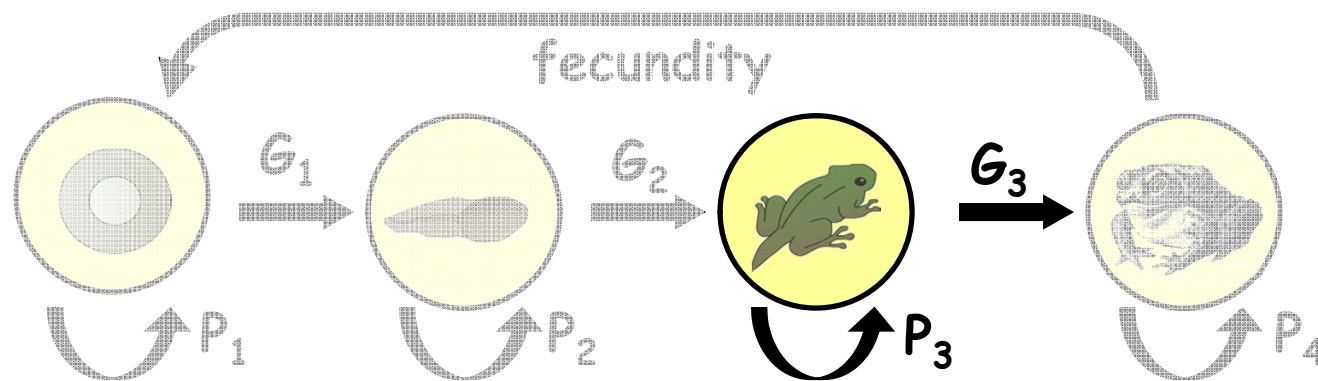


Grottoes Town Park (RM 22.4)
(Feather Data Excluded)



Terrestrial Enclosures

2009-
2010



H8. Embryonic (maternal) and larval (dietary) exposure to Hg will have latent effects on terrestrial survival and growth.

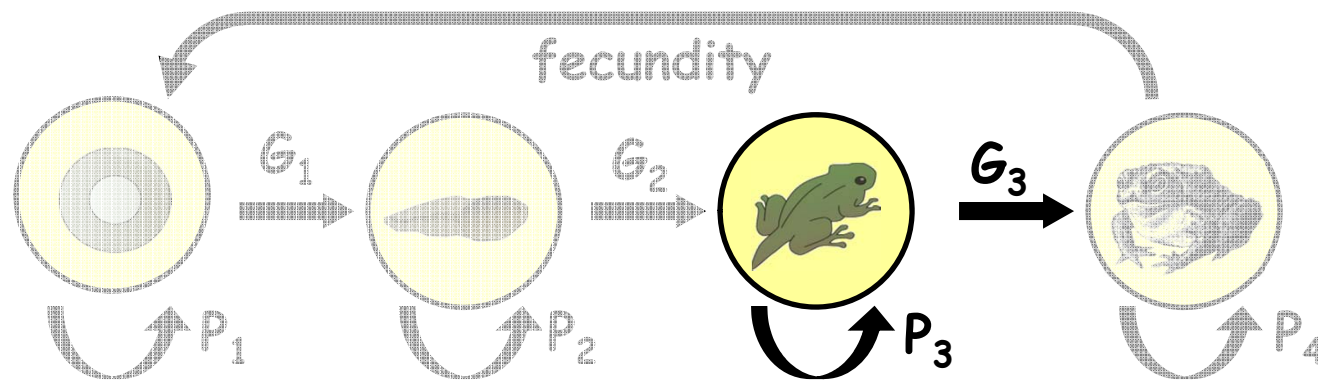
2 X 2 design

<u>Mother</u>	<u>Diet (ng/g)</u>
Reference	Control (10)
Hg-exposed	High Hg (10,100)



Terrestrial Enclosures

2009-
2010



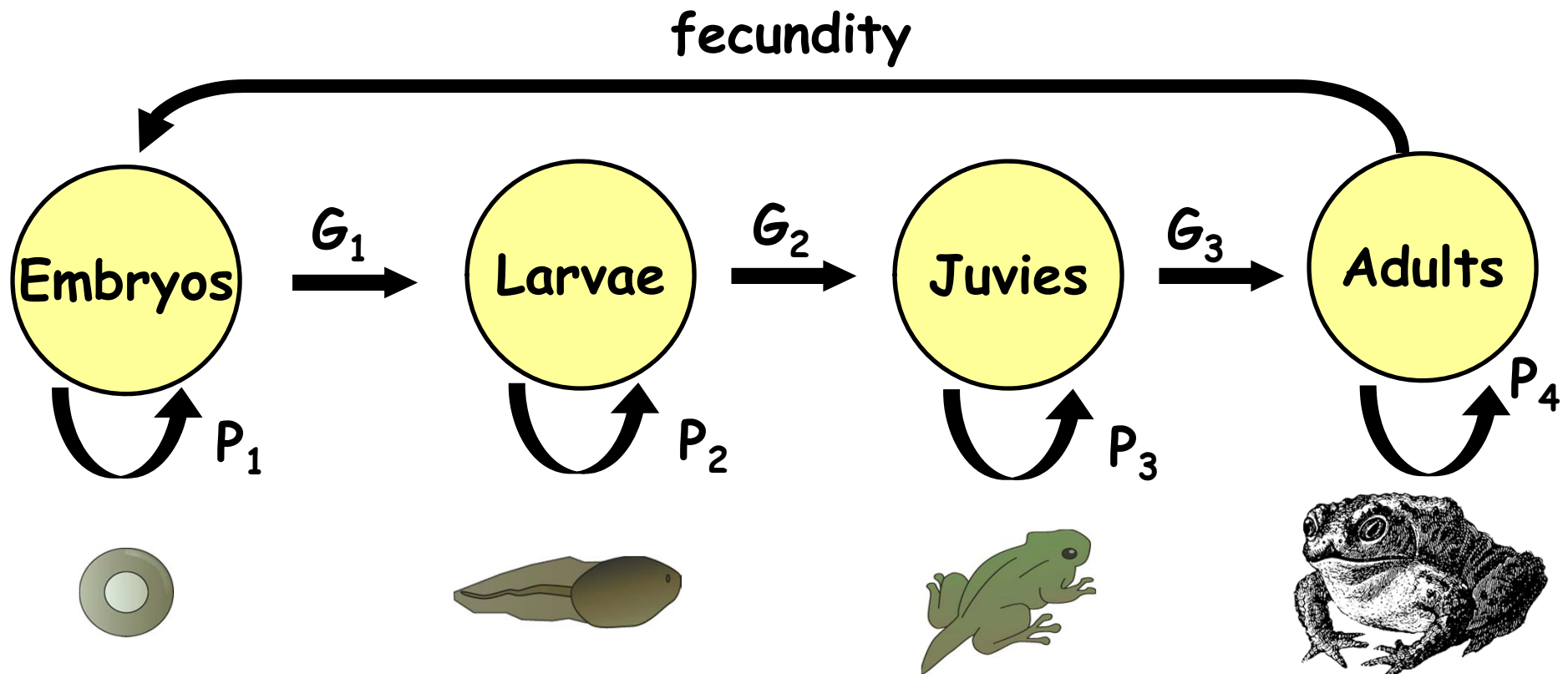
- ~ 63% survival through fall
- Average size increase of 75%
- Just completed overwintering
- Final census: May 2010



2010: Stage-based Population Model

American Toad (*Bufo americanus*)

H9. Exposure to Hg through maternal transfer and trophic transfer will have a negative effect on amphibian population growth rates.



G - probability of surviving to next stage

P - probability of staying in the same stage