Tadpoles Survive Urban Pollutants and Cages to Show Conservation Value of Altered Landscapes

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They Use It, but is It Good for Them?

• Lots of survey data
  • Wildlife use urban stormwater ponds
• No controlled experiments!
  • Could still be drawing them in to their death

Research questions

1. Can urban stormwater ponds support tadpole survival at similar rates to forested ponds?
2. Are urban stormwater ponds acting as ecological traps?
Study Sites for Reciprocal Transplant Experiment

Each of the 9 sites received eggs from each of the 6 source ponds
Eggs in mesh baggies

Assess survival

Rearing in cages

Collect water quality samples throughout
The Scud Ate My Homework

• Major predation of frog eggs
  • Leeches
  • Amphipods

*Sensitive frog ravaged by the Stumptown Scud?!*
Water Quality

- Urban ponds had more pollutants
  - Also higher concentrations
  - Lots of pollutants in all

- Frequent pollutants of interest
  - 42 different pesticide compounds
  - Plasticizers
  - Flame retardants

- Pathways
  - Runoff
  - Atmospheric deposition

USGS Disclaimer: PRELIMINARY DATA, DO NOT CITE OR DISTRIBUTE
• Similar survival among forest and urban ponds!
  • Where wild populations

• Lower survival in non-occupied urban ponds
  • Lots of variation
  • Likely due to depth, sediment
Conclusion

Research questions

1. Can urban stormwater ponds support tadpole survival at similar rates to forested ponds?  
   Yes

2. Are urban stormwater ponds acting as ecological traps?  
   No

- More research needed
  - Other ponds
  - More species
  - Sub-lethal effects
Practical Uses of the Study

• Keep designing urban ponds as habitat
  • Focus on key features (depth, plants, etc.)

• Keep reducing pollutants
  • Likely to benefit everything downstream

(clean pond > dirty pond > no pond)