Headwater Intermittent Streams Study: Collaboration Across the Nation*

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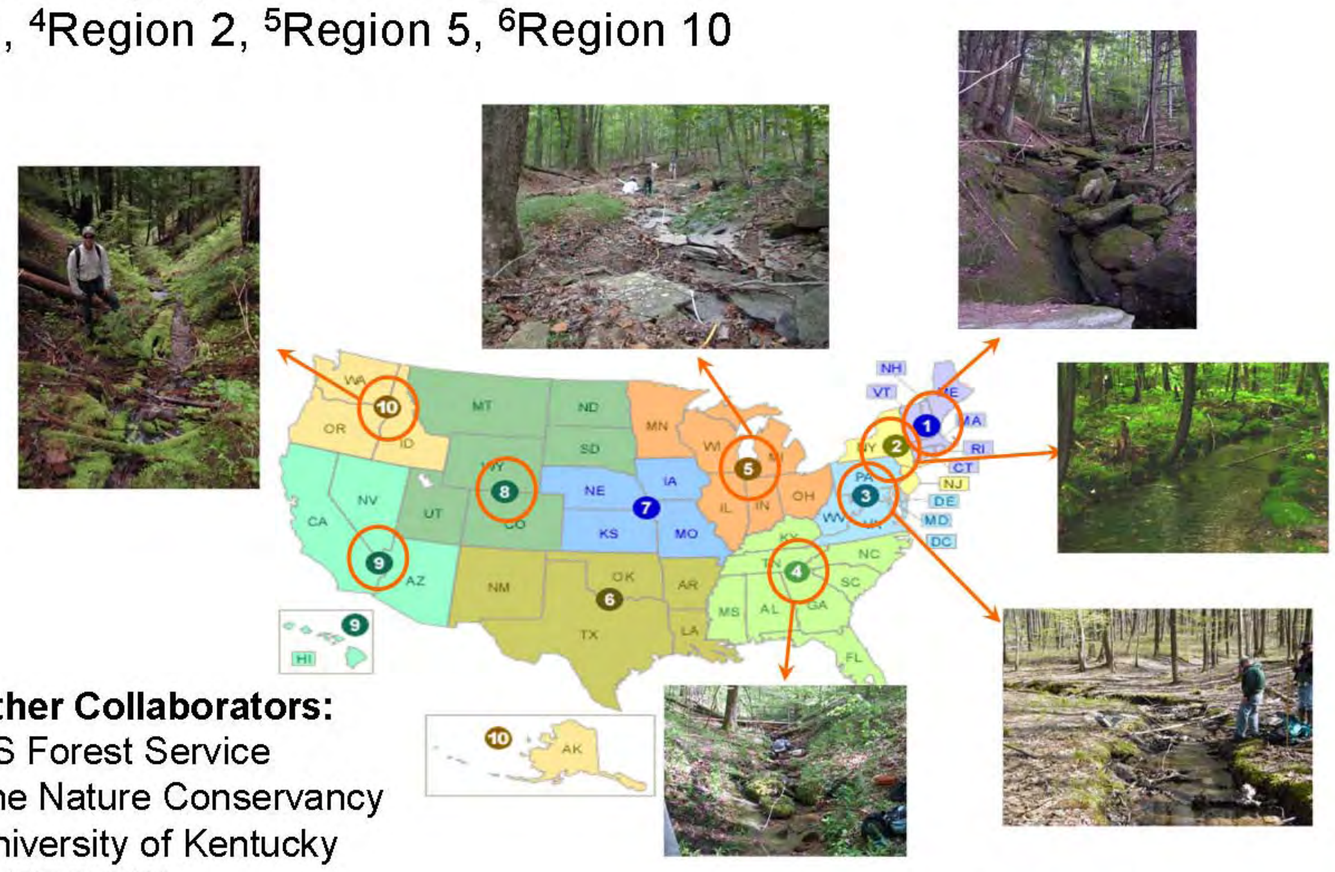
Background:
- Headwater streams represent the majority of our nation's streams and stream miles.
- Because headwater streams are located at the tips of the stream network, they represent a significant land-water interface to downstream rivers and lakes.
- Headwater streams are prone to natural drying each year, confounding our ability to use existing assessment methods for the majority of stream miles in the U.S.

Objective: Develop field protocols and identify physical and biological indicators of hydrologic permanence for forested headwater streams.

Funding: Regional Methods Program (2003-2005)
- Research money specifically designated for methodological needs of states, regions & tribes.
- Sponsoring EPA Regions circled on national map.

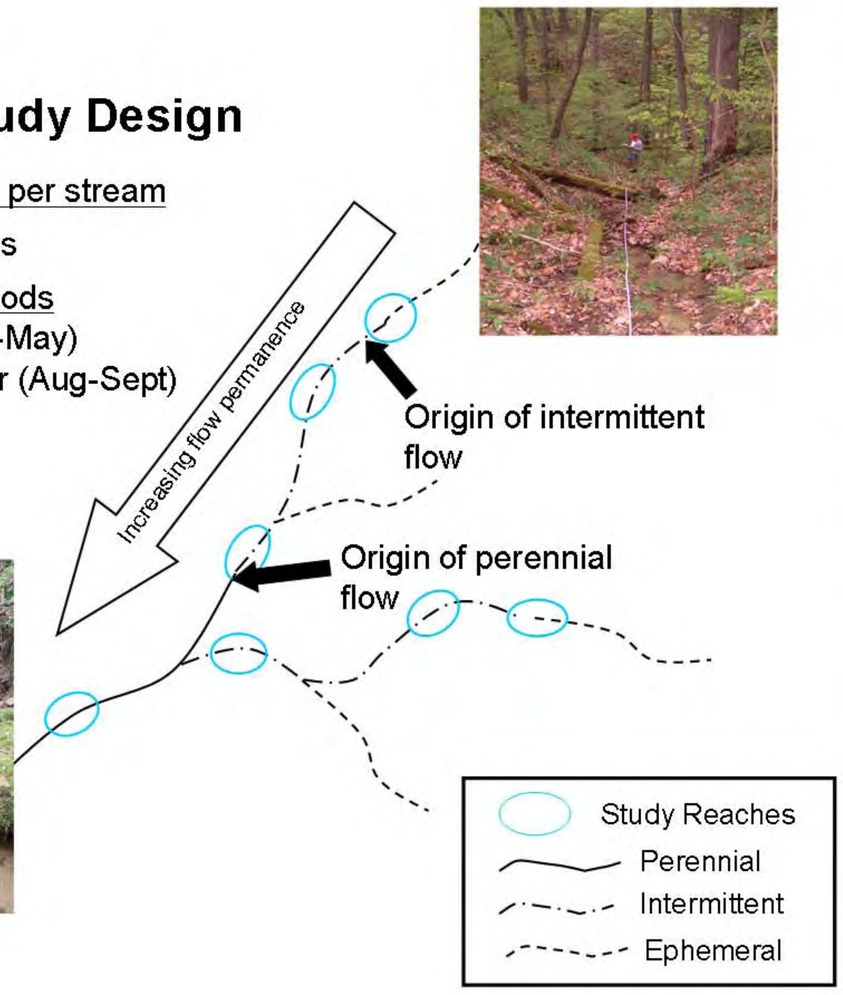


Other Collaborators:
US Forest Service
The Nature Conservancy
University of Kentucky
KYDEP-DW
NYDEC

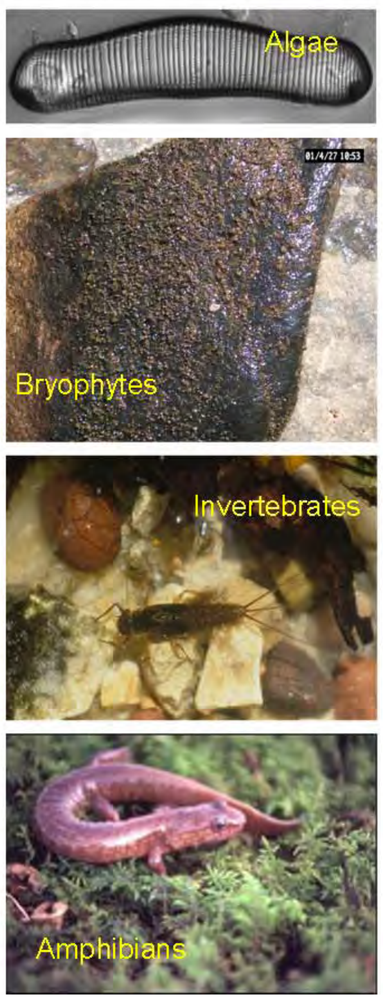
Study Design

3 – 4 locations per stream
- 30 m reaches

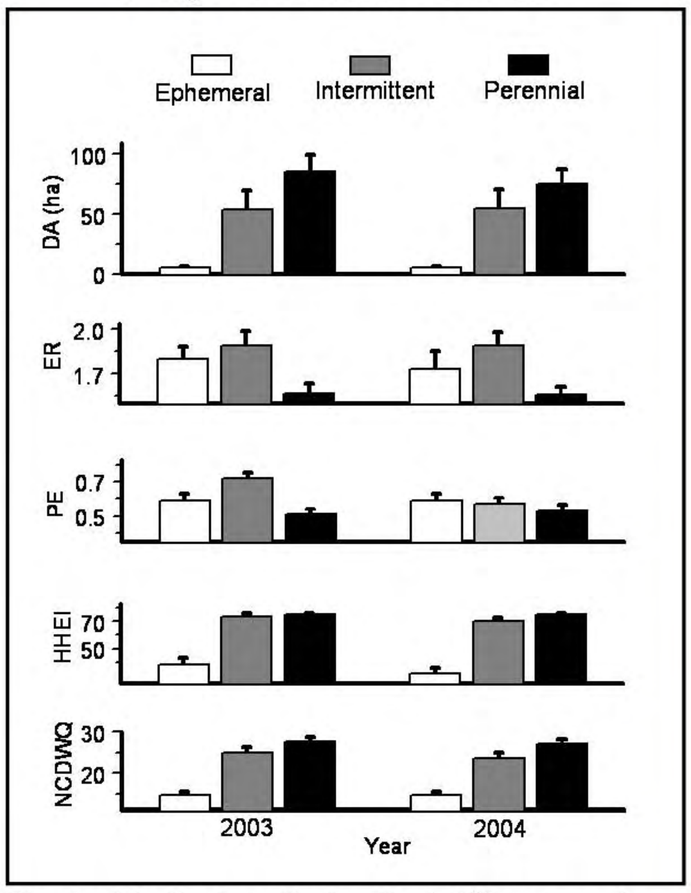
Sampling Periods
- Spring (April-May)
- Late Summer (Aug-Sept)



Biological Indicators



Physical Indicators



Physical indicators that reflect differences in hydrologic permanence among sites in Indiana, Kentucky, and Ohio during 2003 and 2004 flow conditions. Abbreviations: Drainage area (DA), entrenchment ratio (ER), proportion of erosional habitat (PE), Ohio EPA's Headwater Habitat Evaluation Index (HHEI), and North Carolina Department of Water Quality's Stream Classification Index (NCDWQ).

Expected Outcomes:
- Provide states, regions, and tribes with scientifically-sound protocols for assessing condition appropriately for the majority of streams and stream miles in the United States.
- Protect and improve the health of headwater streams which will result in better water quality in downstream water bodies.

** Although this work was reviewed by EPA and approved for publication, it may not necessarily reflect official Agency policy.*

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