



THE AMPHIBIAN RESEARCH AND MONITORING INITIATIVE

Innovative Questions and Research



WHY STUDY AMPHIBIANS?

Many scientific reports have documented declines in amphibian populations, highlighting the need for data on the potential causes and how their status could be improved in the United States.

The life history of amphibians (frogs, toads, salamanders) makes them vulnerable to changes in the environment. Their moist permeable skin can make them vulnerable to changes in water availability and quality. Many amphibians migrate between aquatic sites for breeding and terrestrial sites for foraging and over-wintering, making them susceptible to habitat changes and micro-climate variation. Managing lands for amphibian populations also benefits other wildlife.

ARMI OBJECTIVES

- ◆ Determine the status and distribution of amphibian species and communities on public lands in the United States
- ◆ Understand the scope and severity of amphibian declines
- ◆ Conduct research to identify the causes of amphibian declines
- ◆ Provide essential scientific support to agencies to arrest or reverse declines.



VISION AND DIRECTION

To conduct research that leads to reliable knowledge about the status, ecology, and conservation of amphibians in the United States. ARMI accomplishes this by using interdisciplinary research teams to implement model-based monitoring and conduct field and laboratory experiments.

STRUCTURE

ARMI is a national program housed within the Wildlife Program of the Ecosystems Mission Area of USGS. This interdisciplinary program divides the country into seven ARMI regions, each with at least one principal investigator from Ecosystems and a hydrologist from Water. Questions and data can be local or national in scope.

RESEARCH BREADTH

ARMI scientists conduct research on topics such as the potential effect of agrochemicals on the sexual development of native frogs, endangered species recovery, development and evaluation of habitat restoration techniques for sensitive species, the effects of forest management on species richness, effects of climate change on the fitness and abundance of amphibians, the influences of bio-energetic requirements on amphibian movements across the landscape, the fate and transport of agrochemicals, and the diagnosis, description, and treatment of new diseases.






COLLABORATIONS

ARMI routinely collaborates with federal and state agencies, private conservation organizations, and universities, including international colleagues. This increases our overall effectiveness because it allows ARMI to have a larger impact with its research dollars, and diversifies our scientific perspective.



EXAMPLES of CURRENT ARMI COLLABORATIONS

-  Work with U.S. Department of Agriculture (NRCS-CEAP Wetlands project) to develop a decision support tool that allows managers to simultaneously evaluate the effects of various potential management actions on multiple components of the ecosystem.
-  Work with the USFWS and NPS to develop management strategies in the face of climate change using an adaptive management framework.
-  Collaboration with the National Park Service Greater Yellowstone Inventory and Monitoring Network (GRYN) to determine the status of amphibians in Yellowstone and Grand-Teton National Parks along the Great Divide Transect. NPS designated amphibians as one of its vital signs.

ARMI MONITORING

ARMI pioneered the development and use of occupancy-based estimation tools (i.e., patch occupancy) to monitor the status of species. By using a model-based approach, ARMI has increased the rate at which we gain knowledge about amphibians. These occupancy methods are not limited to amphibians, and an entire branch of useful analytic techniques has emerged which is benefiting the research of many types of wildlife across the world.



Check it out: <http://fresc.usgs.gov/products/fs/fs2005-3096.pdf>



Interested in learning more or collaborating with ARMI?

Contact a Regional Principal Investigator or the National Coordinator

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<http://137.227.231.88/wter/>
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