

Amphibian Malformations

Frog malformations have been reported from 42 states. The broad geographic distribution of these malformations warrants national attention. Scientists at the USGS National Wildlife Health Center in Madison, Wisconsin, are studying this problem in an effort to document its scope and to determine the causes of the observed malformations.



Northern leopard frogs with limb malformations.

Recent reports of amphibian declines and frog malformations have caused great concern among the public and scientific communities. Multiple limbs, missing limbs, and facial abnormalities are the striking hallmarks of developmental malformations seen in these frogs. The broad geographic distribution of these malformations, now reported from 42 states, and the high percentage of malformations in some frog populations, up to 50% malformed individuals in some locations, warrant national attention.

The USGS National Wildlife Health Center (NWHC) in Madison, WI, is collaborating with state and federal agencies to conduct integrated studies to determine the causes of these malformations. USGS scientists have modified and expanded their diagnostic capabilities and field investigation methods to accommodate the unique life history and habitat of amphibians. These new capabilities are particularly important in determining whether infectious agents play a role in causing the observed malformations. This year,

NWHC expanded its research to include examination and diagnostic testing of tadpoles to help pinpoint when malformations begin.

Detailed examination of northern leopard frogs by the USGS has led to more complete characterization of malformations in this species. It was found that the developmental errors that lead to malformations occur in the developing tadpoles. Such baseline information is essential before any cause can be determined.

Several hypotheses are being considered to explain the causes of malformations including chemical contamination, infection, exposure to the sun's ultraviolet rays, or physical trauma. Sorting out the possibilities is difficult but essential. The resulting information will contribute to a more complete picture of the types of agents and environmental insults that cause amphibian malformations.

The USGS Northern Prairie Wildlife Research Center in Jamestown, ND,

has established the web-based (see below) North American Reporting Center for Amphibian Malformations (NARCAM). This web site contains information on the occurrence of amphibian malformations including maps showing locations of observed malformed frogs. The site also enables scientists and the general public to report any findings of frog abnormalities either through the web site or through a toll free phone number (800-238-9801). These observations further enhance the research into this phenomenon.

By studying malformations in frogs, USGS scientists at NWHC are helping to answer one question within the greater mystery of amphibian decline.

Relevant Web Sites:

<http://www.emtc.usgs.gov/nwhchome.html>

<http://www.npwrc.usgs.gov/narcam>

<http://www.mpl-pwrc.usgs.gov/amphibs.html>