

Shiawassee Refuge Completes Fourteenth Year of Monitoring Frogs and Toads

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Tremendous concern exists over the global decline of amphibians. In fact, it is estimated that one-third of the planet's 5,743 amphibian species are threatened according to the Global Amphibian Assessment. Shiawassee National Wildlife Refuge provides quality habitat for ten amphibian species, including eight species of frogs and toads. The refuge has participated in the Michigan Department of Natural Resources Frog and Toad Survey since 1996 and the USGS North American Amphibian Monitoring Program (NAAMP) since 2005. These efforts enable the refuge to watch population trends locally while contributing to state and continental amphibian monitoring efforts.



*Surveys document that the American toad (*Bufo americanus*) has remained a common component of the refuge's herpetofauna. Steven F. Kahl/USFWS; April 2006*

Shiawassee Refuge is one of only nine refuges in the entire Refuge System that participates in the NAAMP. Refuge results may provide further insight into the causes of global amphibian decline. Since the refuge provides an abundance of quality wetland habitat that should be preserved indefinitely, a documented decline would be attributable to other causes such as environmental contaminants, introduced diseases, or invasive species.

Refuge surveys have already yielded interesting results. Importantly, five species, including American toad, eastern gray treefrog, wood frog, northern leopard frog, and green frog have remained common and widespread throughout the refuge for the entire count period. This result is especially encouraging for northern leopard frog because this species has declined dramatically in many areas of North America.

Further, the western chorus frog has increased in abundance and has become much more widespread on the refuge, while it appears to be declining overall in Michigan. Conversely, the spring peeper is the most common species found on the Michigan Frog and Toad Survey, but has only been documented once on the refuge's counts. These numbers suggest that the western chorus frog may be exploiting an unoccupied ecological niche not inhabited by the closely related spring peeper, which has never been common at the refuge.



The northern leopard frog remains abundant at the refuge while suffering steep declines in many other regions. Steve Gasser; September 2005

Refuge count results may shed light on other interactions between frog and toad species. The bullfrog first appeared on the refuge in 2005. Although this species is native and widespread in Michigan, it has been blamed for amphibian declines in areas where it has been introduced. It is the largest frog species in North America and adults eat virtually any amphibian, reptile, fish, small mammal, bird, or invertebrate they can capture and fit in their mouths. If bullfrogs become more common at the refuge, it will be important to record the population response of other frogs.