

Northern Leopard Frog

(*Lithobates pipiens*)

State Status: Endangered, 1999

Federal Status: Species of concern

Recovery Plans: None

The northern leopard frog (Figure 1) is one of the most widely distributed amphibians in North America. Recently, however, declines in the populations of this species have been reported from throughout its range. The species was petitioned in 2009 for listing under the Endangered Species Act, but a status review determined that listing throughout their range was not warranted (USFWS 2011).



Figure 1. Northern leopard frog. Individuals can have a green or brown background color, but oval spots surrounded by a halo are typical (photo by Steve Germaine).

The northern leopard frog has been called the “meadow frog” for its summertime movements away from natal ponds. A wide variety of habitats are inhabited, even hay fields and grassy woodlands, although this may not be true of leopard frogs in much of the arid West. Leopard frogs require permanent deep water for overwintering, in proximity to seasonal ponds and wetlands for breeding.

Museum records indicate that leopard frogs inhabited at least 18 general areas in eastern Washington, many of these along the Columbia River and its major tributaries (Figure 2; McAllister et al. 1999). Investigations during 2002-2005 indicated that the species was found in only two areas in the state: in ponds at the Potholes Reservoir and Gloyd Seeps units of the Columbia Basin Wildlife Area in Grant County (Figure 2). The Gloyd Seeps population was near extirpation and was last detected in 2004 (Germaine and Hays 2007, 2009). Recent surveys confirm that the Potholes population is the only remaining population. Intensive survey efforts have determined that leopard frogs are negatively associated with the presence of bullfrogs, carp, and non-native predatory fish. In 2012, one of the key ponds was found to have been invaded by large bullfrogs.



Figure 2. Historical and recent records of northern leopard frogs in Washington.

Factors affecting the species. Several factors likely contributed to the decline of leopard frogs in Washington (McAllister et al. 1999). The increasing spread of bullfrogs, which prey on leopard frogs and other amphibians, is a major problem. Introduced fish are also known to eat amphibians and are thought to cause significant declines in leopard frog populations. Agricultural chemicals have been implicated in the decline of amphibians in other areas and may affect leopard frog populations in Washington. Rotenone used to control unwanted fish can kill leopard frog tadpoles.

Habitat-related changes have caused declines of leopard frogs elsewhere in North America, and are possible problems in Washington. Expansion of native cattails and bulrush, and non-native phragmites,

reed canarygrass, and purple loosestrife can render breeding habitats unsuitable. Land use changes, irrigation projects, and development have contributed to changes in the hydrology of many areas, potentially affecting amphibians through rapid changes in water levels during critical embryonic and larval periods. Vehicles on roads can be a significant source of mortality as leopard frogs move from breeding to summer and overwintering habitats (Merrell 1977). Disease, particularly chytrid fungus, may also have contributed to the decline in Washington.

Conservation activities. In 2012, Washington State University discontinued a captive rearing program due to disease issues and lack of staff to adequately operate the facility. A graduate research project was initiated to develop methods to estimate population size within the subunits of the Northern Leopard Frog Management Area using mark recapture via photography (individuals have unique spot patterns) (Figure 3).

Partners and cooperators: U.S. Fish and Wildlife Service, Washington State University, Bureau of Reclamation.

Literature Cited

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Figure 3. Northern leopard frog photo for mark-recapture study (photo by R.Saylor, WSU).