

Northern Leopard Frogs: Another Prairie “Canary in the Coal Mine”

by Carolyn Gaudet

Northern leopard frogs are a distinctive species that are often heard in the spring among the croaks of all frog species heard in Saskatchewan. Northern leopard frogs, however, are declining and are currently listed as special concern under the Species at Risk Act. They are green or brown, or a mix of the two colours and have dark leopard-like spots with light borders on their back and sides, which gave the frog its name. They also have two light-coloured ridges on their back. Adults are 6-11 cm (2.5-5 inches) long with females being larger than males.



Although occurrences are reported to the Saskatchewan Conservation Data Centre, there have been no long-term monitoring programs for Northern leopard frogs in Saskatchewan. Therefore there are no population estimates or population trends available for the province. Northern leopard frogs are found throughout most of North America, and the Western Boreal/Prairie population covers 35% of the species' total range in Canada. This species is associated with major river drainages include the North Saskatchewan, South Saskatchewan, Qu'Appelle, Frenchman and Souris rivers.

Northern leopard frogs are semi-aquatic and they require three habitat types for their life cycles that are connected or in close proximity. In winter, they will hibernate in oxygenated water bodies that do not freeze solid, such as ponds, lakes, rivers, streams and springs. During their April through June breeding season, the frogs will travel up to 1.6 km to breed in shallow, warm waters like wetlands or slow moving streams. Their ideal breeding areas are non-acidic and contain no predatory fish but have protective cover and vegetation (e.g. roots, stems, or leaves) to attach egg masses. After the breeding season, the frogs can disperse up to 8 km from the breeding site to forage in riparian or upland habitat (pastures, riparian corridors, ditches). The

loss of any one of the three necessary habitat types in close proximity could disrupt the species' life cycle and may lead to local population loss.

Like many other species at risk, habitat loss, degradation and fragmentation are responsible for the decline of Northern leopard frogs. In Saskatchewan, continual wetland drainage, pipeline and highway construction reduces suitable and stable habitat. Climate change and variable weather can also lead to population declines as prolonged drought can prevent breeding and lead to population loss in localized areas. Livestock grazing can also impact Northern leopard frogs, including shoreline grazing that may disturb adults, trample eggs, or reduce water quality. Overgrazing habitat, including the removal of vegetation structure or reducing plant litter, can further affect the species as litter is required to maintain soil moisture and cover is necessary during dispersal and for hiding from predators. Additionally, Northern leopard frogs are also vulnerable to diseases.


Northern leopard frogs, like all amphibians, have thin, permeable skin,

that allows water and air pollutants to be easily absorbed into their bodies, causing physical abnormalities, diseases and death. This makes amphibians a useful indicator of ecosystem health. They are essentially a 'canary in a coal mine' for prairie wetlands. According to Lea Randall, a Northern leopard frog researcher with the Calgary Zoo, these frogs have a key role in the ecosystem as they control insect and invertebrate populations and the tadpoles can limit algae growth and oxygen depletion, which can kill other wetland species. They are also prey species for a number of predators.

Although the species seems to be found in several locations in the province and can at times be counted in the thousands in certain locations, multiple threats could lead to localized population losses, leading to overall population declines. The loss of one species, especially a species that has a central role in the food web, in addition to being sensitive to aquatic contaminants, can indicate future problems that may lead to the collapse of that wetland ecosystem. By conserving frogs, producers can have a positive impact on the entire ecosystem.

Producers can improve the situation for Northern leopard frogs by implementing a few simple actions, including leaving wetlands intact, using moderate stocking rates and preventing riparian areas from being overgrazed. Land managers can also be habitat stewards by learning about the species present in their area. There is at least one program available in Saskatchewan that may provide funding for work to improve frog habitat and that is the Saskatchewan Species at Risk Farm Program, administered by Simply Agricultural Solutions. More information is available at simplyag.ca.

Nature Saskatchewan also has a Stewards of Saskatchewan banner program that includes all prairie species at risk. You could join 97 private landowners and land managers who are participating in the program and conserving approximately 36,000 acres of habitat. Nature Saskatchewan's website is www.naturesask.ca.

FrogWatch is a citizen science initiative that collects frog sightings and provides more information on all the amphibian species in Saskatchewan. Northern leopard frog sightings can be reported to FrogWatch (<https://www.naturewatch.ca/frogwatch/saskatchewan/>). 


For more information on Northern leopard frogs, you can see the Environment and Climate Change Canada Management Plan here: http://www.registrelep-sararegistry.gc.ca/document/default_e.cfm?documentID=1929

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