

# Northern Red-legged Frog

(*Rana aurora*)



Photo credit: Stephen Nyman

## Species Description

Northern red-legged frogs are medium-sized frogs found in a variety of aquatic habitats, and if you see a glimpse of their underside the source of their name is revealed - the under half of the hind legs are a bright red! They have long legs, smooth skin, and are greenish-gray to reddish-brown overall with dark flecks on the back, sides, and legs. Distinctive markings are a dark mask, a horizontal stripe from eye to shoulder, and cream and dark gray marble patterns on the throat and chest. Older frogs have red coloring on their sides, while juveniles have yellow under the legs and belly instead of red. The tadpoles are brown with small black flecks on the upper body and small light flecks on the lower body. Northern red-legged frogs are relatively large: males grow up to 2.7 inches, and adult females can grow up to 5 inches in length (not including their legs).

At first glance, the northern red-legged frog is similar to several other species of frog native to Oregon: the two spotted frog species (Oregon and Columbia), and the Cascades frog. Distinguishing features to look for in a northern red-legged frog are prominent dorsolateral folds (folds of skin that run the length of the body on either side of the back) to the hip, eyes oriented outward, a red wash on the underside of the thighs on semi-translucent skin, and a vague or absent lip line.

## Range and Distribution

The native range of northern red-legged frogs extends from the southwestern coast of British Columbia southward along the Pacific coast east to the west Cascades, and south to Mendocino County in northwestern California. They live at elevations ranging from sea level to 4,680 ft.

Northern red-legged frogs occur throughout western Oregon from the west Cascades and Klamath Mountains to the coast.

## Habitat Characteristics

Northern red-legged frogs can be found in a variety of aquatic habitats. They breed in slow moving waterbodies with submerged aquatic vegetation and water that persists long enough into the season for juveniles to metamorphose. They will use permanent and temporary wetland habitats, including springs, ditches, ponds, marshes, and the margins of lakes.

They can be wide ranging in terrestrial habitats, and are associated with availability of coarse woody debris and medium canopy cover. In the non-breeding season, they are often found in damp brush or under forest debris adjacent to waterbodies.

Overwintering habitat is not well described. They are not freeze-tolerant, so they find refuges from freezing temperatures likely on the forest floor, in stream banks, or possibly at the bottom of ponds.



## Diet and Foraging

Northern red-legged frogs are visual hunters. Once they locate prey, they use their large, sticky tongue to capture a wide variety of invertebrates. Large adults may eat smaller frogs or salamanders, while the tadpoles feed on algae.

## Life History and Ecology

Northern red-legged frogs are diurnal (active during the daytime), and are usually found in or near water though they can be wide ranging in terrestrial habitats. Adult home ranges can be over a mile wide; one study in Oregon documented a breeding female that had moved about three miles from where she bred that season. Like other amphibians, northern red-legged frogs are *ectothermic* (or "cold blooded") and rely on the environment to maintain their body temperature. They become inactive if conditions get too hot, too cold, or too dry.

Adult northern red-legged frogs emerge from winter dormancy soon after temperatures are warm enough for breeding ponds to thaw. During the breeding season, they gather at optimal breeding grounds before returning into damp forests and riparian areas only a week or two later. Northern red-legged frogs have a short breeding season. They breed between January and March for one to two weeks when temperatures exceed 42 to 45°F and breeding locations are available. Males make a call to attract potential mates: a soft, low volume series of five to seven notes, that sounds like "uh-uh-uh-uh-uh." Egg clusters are laid individually attached to vegetation in water, and have an average of 2,000 eggs each.

Northern red-legged frogs undergo complete metamorphosis: tadpoles, the immature form that emerge from eggs, are distinctly different in body form from fully mature adults. Tadpoles are fully aquatic, have gills and a tailfin, and do not have legs. During metamorphosis, they transform drastically; they grow legs, reabsorb their tail, and develop lungs. They mature fairly quickly; eggs hatch after four to six weeks, and tadpoles metamorphose after another 11 to 16 weeks. Males typically reach reproductive maturity at two years of age, and females at three. Individuals can live to be over ten years old.

Adult northern red-legged frogs are preyed on by herons and raccoons, while juveniles are consumed by larger adult frogs and garter snakes, and the tadpoles are eaten by rough-skinned newts, salamanders, fish, and diving beetles. They defend themselves by remaining motionless and relying on their natural camouflage, or by leaping into brush or water for cover.

## Fun Facts

- Female northern red-legged frogs are nearly twice as large as males!
- While populations of northern red-legged frogs in Oregon are of conservation concern, the species has established non-native populations in Hawaii, Alaska, and Nevada.
- Northern red-legged frogs have long legs that make them excellent at leaping long distances, a useful skill for avoiding predation.
- Growing up to five inches in length (not including the legs) northern red-legged frogs are the largest frog species native to Oregon. American bullfrogs are larger (growing up to eight inches!), but are not native to Oregon.
- The breeding season is a dangerous time for northern red-legged frogs as they cross roads to get to their breeding ponds (see Conservation section). In some areas around Portland where breeding northern red-legged frogs are still found, volunteers work to help shuttle breeding frogs on their way to and from breeding ponds to help them cross dangerous busy highways and railroad tracks.

## Conservation

Northern red-legged frogs face several threats that may impact their population stability. Their historical range has contracted due to habitat loss and degradation due to logging, development, altered fire regimes, and climate change. Invasive species including American bullfrog and nonnative fish species may contribute to their population decline.

Northern red-legged frogs move long distances overland from their upland habitat to their breeding habitats each year, and then after the breeding season is complete they turn around to make the long return trip. This long migratory journey can be perilous, and individuals often have to cross busy roads to get to their destination. Look out for frogs crossing the roads near wetlands during the breeding season, especially during or after a rainfall when the road is wet.

If you have habitat for northern red-legged frogs on your property, you can help populations of these frogs by leaving coarse woody debris on the ground, planting native plants, and removing invasive plants. Northern red-legged frogs, like many frog species, are sensitive to chemicals that may be on your skin and handling these frogs may harm them. Pesticides and herbicides used in lawn care may run off into wetland habitats, harming these frogs.

In Oregon, northern red-legged frogs are a Sensitive Species and an Oregon Conservation Strategy Species. For more information about the conservation status of northern red-legged frogs including special needs, limiting factors, data gaps, and conservation gaps, refer to the Oregon Conservation Strategy.