

Oregon Spotted Frog (*Rana pretiosa*)



photo courtesy of Stephen Nyman

Species Description

Oregon spotted frogs are the most aquatic frogs in the Pacific Northwest; often if you see one, you'll only see its eyes peeking up out of the water. This medium-sized frog is named for the black spots that cover its head, back, sides, and legs. These spots have a light bump in the center, with blurred or scalloped edges. As individuals age, the spots become larger and darker, with less distinct edges. The juveniles are brown or olive green on the back, whereas adults are an overall reddish-brown, becoming redder with age. Their underparts are an opaque cream with red blotches, and the underside of their legs become a vivid orange-red with age. Adult females can grow to four inches in length, snout to vent, and males grow up to three inches. Tadpoles are dark in color above, with a lighter colored belly. Older tadpoles develop metallic flecks on their body.

Morphologically, Oregon spotted frogs are almost identical to another frog species native to Oregon, the Columbia spotted frog (*Rana luteiventris*). Adult Columbia spotted frogs do not have mottling on their abdomen. The best way to distinguish between the two spotted frog species is by location, as they do not co-occur. Other frog species similar in appearance to the spotted frogs are northern red-legged frogs and Cascades frogs. Spotted frogs can be distinguished from other similar species by their upward oriented eyes and large black spots with blurred or scalloped edges.

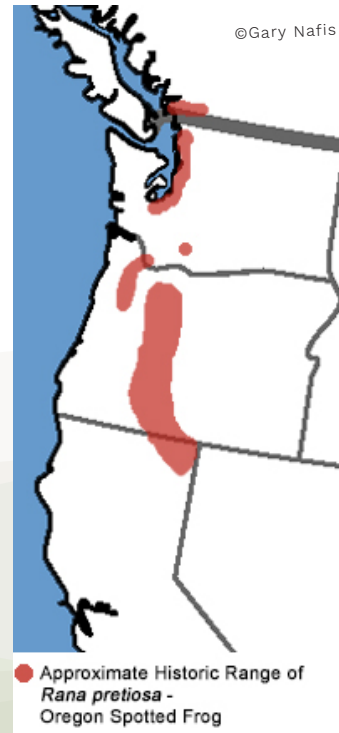
Range and Distribution

Historically, Oregon spotted frogs ranged from northeastern California to southwestern British Columbia, in both the west and east Cascades. However, recent surveys have determined that they have been extirpated (locally extinct) from 70-90% of their original range. They are now likely completely absent in California, the Willamette Valley, and the lower Columbia River. Populations persist in British Columbia, Washington, and Oregon. They live at elevations from sea level to 5,450 feet.

In Oregon, populations of Oregon spotted frog are currently known to occur in Lane, Deschutes, Klamath, Jackson, and Wasco counties.

Habitat Characteristics

Oregon spotted frogs require wetland habitats with a variety of water depths to support all life stages. They require year-round aquatic connectivity between wintering and breeding sites, emergent vegetation, and reliable water levels that allow tadpoles enough time to undergo metamorphosis. They use the shallow edges of wetlands where the water is warm and there is abundant emergent vegetation for cover, basking, and to lay their eggs in early spring. As the wetland dries out during the summer, they move to deeper permanent pools within the wetland that have some vegetation and remain watered year-round.



Diet and Foraging

Oregon spotted frogs feed primarily on aquatic insects, ambushing their prey from the water. Prey items include spiders, ground beetles, and sometimes small vertebrates like small frogs. They are opportunistic predators, and adults occasionally even feed on juvenile members of their own species! Tadpoles use their rows of rough teeth to scrape algae and decomposing organic matter off of rocks and plants.

Life History and Ecology

These frogs live their lives following water availability. Adults move into shallow breeding sites soon after snow begins to melt in the spring, and retreat to deep pools as the water recedes in the dry season. Individuals can move hundreds of meters between their breeding and wintering habitats. Most movement is in the water, though they are capable of short distance travel overland. They overwinter in the water, and can continue to be active in water under the ice for much of the winter! Frogs are ectothermic, or “cold-blooded,” which means they rely on the environment to maintain their body at the optimal temperature for metabolism.

In the early spring as snow melts, males gather in large groups at breeding sites and can be heard making a faint series of 5 to 50 calls that sound like tapping to advertise for mates. The breeding season may last several weeks. Reproduction is aquatic, and occurs from late May to early June in high elevation wetlands, and from February to March at lower elevations. Egg clusters are laid close to the same location every year, in shallow, temporary pools that are no more than 14 inches deep. These pools typically dry up later in the season. Eggs are often laid communally, with some egg-masses containing eggs from over 75 females! Each female lays about 600 eggs.

The lifespan of Oregon spotted frogs is poorly understood, but individuals are known to have lived over seven years. They undergo complete metamorphosis, when they change from their juvenile form to an adult frog. Tadpoles reach metamorphosis in their first summer. Males reach sexual maturity at one to two years old, maturing earlier at low elevations. Females begin breeding by two or three years of age, also dependent on elevation and latitude. Early life is perilous for Oregon spotted frogs: eggs are vulnerable to desiccation or freezing, and tadpole mortality is high.

Tadpoles have many predators, including garter snakes, diving beetles, many introduced fish species, nonnative American bullfrogs, rough-skinned newts, and giant water bugs. Adults are predated by a wide variety of avian and mammalian species. They avoid predation by jumping into water and hiding under aquatic vegetation.

Fun Facts

- Oregon spotted frogs are the most aquatic native frogs in the Pacific Northwest, and are rarely found more than six feet from water.
- Oregon spotted frogs spend much of their lives in the water. Adaptations to their highly aquatic lifestyle include upward facing eyes that allow them to peer out of the water and fully webbed feet.
- They can move relatively long distances for a small animal. While typical seasonal movements of individuals average only a few hundred meters, one adult female frog was documented to move over 1.7 miles from where she was first captured along Jack Creek in Klamath County Oregon!
- How do Oregon spotted frogs survive cold winters in the water? As temperatures cool in the fall, individuals move to deep pools that do not freeze all the way through, springs, or into channels with permanent, well-oxygenated moving water where they are protected from harsh cold conditions. They can “breathe” underwater by absorbing oxygen from the water through their skin.

Conservation

The population of Oregon spotted frogs has declined drastically from historic levels, and they no longer are found in over three quarters of the known historic range. Reliable population trends are unavailable for much of their range. As a species highly reliant on year-round water, they are especially vulnerable to changes in hydrology. Siltation, predation, and competition with invasive species, including fish and bullfrogs, are further threats.

Many frog species and their habitat are vulnerable to disturbance. To help in the conservation of Oregon spotted frogs and other amphibians in aquatic habitats, make sure that when you’re out in nature you pack out all of your trash, avoid damaging or disturbing wetland habitats by staying on established trails, and keep your pets on leash. Many frogs are sensitive to chemicals that may be on your skin such as sunscreen and insect repellent, so avoid handling them whenever possible. As a highly aquatic species, they are vulnerable to the effects of aquatic invasive species and the amphibian chytrid fungus. To help prevent the spread of invasives and pathogens, make sure to disinfect field gear in between use in different waterbodies.

The species was federally listed as Threatened in the United States in 2014. They are classified as Sensitive-Critical in Oregon, and are an Oregon Conservation Strategy Species. For more information about the conservation status of Oregon spotted frogs including special needs, limiting factors, data gaps, and conservation actions, refer to the Oregon Conservation Strategy.