OREGON SPOTTED FROG

Rana pretiosa

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Introduction

The Oregon spotted frog now numbers less than 400 in British Columbia. It is no wonder its scientific name means 'the precious frog'. This species once ranged from southwestern BC into California, but is now endangered and has disappeared all together from California. Its endangered status results from its inhabiting lands highly coveted by humans for use as farms, roads and housing developments. As much as 90% of its habitat is gone and its survival is continually threatened by introduced species. The frog's future depends on the emergency breeding and habitat restoration projects that are now underway.

Characteristics

Until recently the Oregon spotted frog and the Columbia spotted frog were considered one species. Now, despite the close physical resemblance, they can be differentiated by the amount of mottling on their bellies, protein analysis differences and separate ecological niches; the Oregon Spotted Frog occupies southwestern BC and the Columbia Spotted Frog the interior of the province.

The adult Oregon spotted frog is dark brown to reddish-brown in colour, with light, ragged-edged black spots over its head, back and legs. A ridge, or dorsolateral fold, runs down either side of the back from behind the eye almost to the rump. Its orangey-red tinted underbelly has a mottled appearance and its throat is white. It measures 45 to 70 mm in length from snout to rump. The female is larger than the male. In more southern populations of Washington and Oregon some frogs may reach lengths of 100 mm. The frog's eyes are angled upward, an advantage to a highly aquatic frog that spends much of it's time partially submerged in shallow water.

Behaviour

The Oregon spotted frog is known as a "sit and wait" predator. They sit motionless in the water or on shore and wait for their dinner to walk or fly by. Its diet comprises of beetles, spiders, flies and water striders and in some cases, juvenile frogs of other species. The frog captures the prey with its long sticky tongue. Its young, known as tadpoles, are grazers, eating algae, decaying plant matter and debris or discarded material, also known as detritus.

In shallow, warm water near the shore, male Oregon spotted frogs gather in February to call to females. They are not territorial and may sit side by side showing no aggression towards each other. Male Oregon spotted frogs do not have the booming voices characteristic to other frog species. Their call is instead low-pitched and sounds like a quiet knocking on wood. It carries only 20 to 30 metres, but nonetheless manages to attract females who will lay their eggs in communal, free-floating egg masses. The water must be shallow**,** less than 10 cm, free of vegetation, and near the shore. Breeding season is very short**,** lasting only a few weeks.

Biologists have determined that the warmer water near shore allows rapid embryo development. However, laying eggs there is also risky because shallow waters can dry out leaving the eggs stranded, or freeze if there's a late cold snap. The egg masses are also within reach of shoreline predators.

Tadpoles emerge from the eggs within 18 to 30 days. They metamorphosis into miniature frogs (half the size of adults) about 13 to 16 weeks later, but won't reach maturity until they are two or three years old.

The lifespan of the Oregon spotted frog is not known but is most likely no longer than four or five years.

Habitat

Oregon spotted frogs are more aquatic than other British Columbia frogs, preferring shallow waters with leafy vegetation and fallen branches or rocks to sit on. Their eggs must have warm, shallow water free of vegetation in order to develop properly. The Oregon spotted frog prefers ponds that are exposed to sunlight which allows the water to be warmed. They avoid too much shade which can create an unsuitable living environment. In the past, British Columbia's Fraser Valley has provided an abundance of these sites with large areas of marsh flooded each year by the Fraser River. However, dykes and drainage programs have claimed the land for agriculture, houses, roads and parks. In the process, the Oregon spotted frog has lost as much as 90% of the shallow wetlands suitable for breeding. The remaining habitat is fragmented, cutting the frog off from potential mates.

Threats

These amphibians have a multitude of potential predators. Great blue herons, garter snakes, mink, raccoon, coyote can all prey on this species. In addition, they have to compete with other frog species such as the green frog and the massive bullfrog. Bullfrogs are awe-inspiring at 80-180 mm in size and can eat anything it can fit into its mouth, including juvenile Oregon spotted frogs. They are also threat because they compete with the adult Oregon spotted frogs for food and scarce breeding sites. As a result, native amphibian populations are always lower in areas that bullfrogs inhabit.

Also recently, reed canary grass has also become a serious threat. It chokes the shallows with a dense root system, making it impassible to the Oregon spotted frog and unsuitable for its eggs and tadpoles.

The frog may also be susceptible to newly discovered amphibian diseases such as iridoviruses and chytrid fungi. Because of their permeable skin, frogs are very vulnerable to all water-carried pollutants such as the nitrogen based compounds found in crop fertilizers. A recent study of five Pacific Northwest amphibians showed that the Oregon spotted frog was the most sensitive to chemicals contained in water that was proven safe for human consumption.

Habitat loss and degradation and pollutants continue to be major threats of amphibian species worldwide.

The Oregon spotted frog is recognized as an endangered species by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is also "red-listed" meaning that it has been considered for legal designation as endangered or threatened. In Oregon it has been identified as a Sensitive Critical species and in Washington State, as Endangered. It has also been listed under the Federal *Endangered Species Act* by the U.S. Fish and Wildlife Service.

In 1999 the BC Wildlife Branch initiated the Oregon spotted frog Recovery Team, which has since been at work helping to raise frogs in captivity and release them into monitored sites. Team members come from all levels of government, as well as First Nations, universities and conservation organizations and universities. Breeding programs are carried out at the Vancouver Aquarium and the Greater Vancouver Zoo. For more information about the Recovery Team's work visit http://www.oregonspottedfrog.com/.

What can we do to help?

Frogs protected under the BC Wildlife Act may not be kept in captivity or handled, regardless of whether they are tadpoles or adults. Unfortunately there are no provisions under the act to protect the frog's habitat. Therefore, the long term recovery of this species will depend on public support and cooperation with municipalities, regional

governments, private landowners and individuals. Frogs and tadpoles should not be moved from pond to pond, non-native plant species should be controlled, non-native fish and frogs should be removed from wetlands and pesticides and fertilizers should properly disposed of, away from wetland frog habitats. Politicians and planners need to be made aware that the public cares about the needs of wetland amphibians. Learn more about the Oregon spotted frog through the websites below, tell others about them, and speak up for the protection of your local wetlands.

Bibliography

BC Frogwatch Program website
http://wlapwww.gov.bc.ca/wld/frogwatch/whoswho/factshts/orspot.htm

BC Ministry of Water, Land and Air Protection
"Wildlife in British Columbia at Risk: Oregon Spotted Frog"
http://wlapwww.gov.bc.ca/wld/documents/spotted_frog.pdf

Center for Biological Diversity
http://www.biologicaldiversity.org/swcbd/species/spottedfrog/

Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
http://www.cosewic.gc.ca/eng/sct5/index_e.cfm

Environment Canada
News Release Archive
http://www.ec.gc.ca/press/bcfrog_b_e.htm

Haycock, R. D. 1999. Status report on the Oregon spotted frog, *Rana pretiosa* in Canada. Report to the Committee on the Status of Endangered Wildlife in Canada. Ottawa. COSEWIC website: http://www.cosewic.gc.ca/eng/sct5/index_e.cfm

Ministry of Water, Land and Air Protection
Biodiversity and Wildlife in British Columbia
http://wlapwww.gov.bc.ca/wld/index.htm

Oregon Spotted Frog Recovery Team
http://www.oregonspottedfrog.com/index.htm

Vancouver Aquarium Marine Science Centre
http://www.vanaqua.org/conservation/oregon-spotted-frogs.html