

Amphibian Habitat on Private Lands

Washington has over 30 different species of amphibians. These species live in many habitats in every part of Washington including mountain streams, large lakes, small seasonal ponds, and large rivers. However, because of shrinking habitat, *invasive species*, and pollution, populations of amphibians are on the decline. Private land owners should consider three factors when trying to increase amphibian populations on their lands:

- 1) **Habitat**, such as preserving wetlands and riparian habitat, and possibly improving these areas
- 2) **Invasive species** that prey on amphibians should be controlled and special care should be taken not to introduce additional species
- 3) **Chemicals**, because amphibians spend the **larval** form of their lives in water and return to water to breed, any chemicals, or fertilizers that are in the water can kill or render amphibians reproductively sterile.



Habitat considerations

Providing suitable habitat is the first step to maintaining a population of amphibians and it is also necessary when trying to attract a new amphibian species. Amphibians need both **aquatic** and **terrestrial** habitat. Aquatic amphibians have **gills** that allow them to take oxygen from water. But terrestrial amphibians use **cutaneous breathing to survive on land**.

Amphibians breed, lay eggs, and spend the first part of their lives as larvae living in water. This means that having a water source is a must. The water on your property does not have to be present year round to support a variety of amphibians. For example, spadefoot toads (*Scaphiopus intermontanus*) develop from egg to adult in less than two weeks.

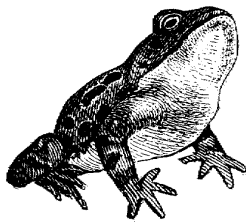
Good water habitat must contain three elements.

- 1). **Cover**: This provides areas to hide from predators. Cover in aquatic habitats can come in the form of aquatic plants, fallen timber, or mud. Good terrestrial habitat includes fallen trees, plants, rocks, grass, and dead organic material in which the animals can burrow.
- 2). **Oxygen**: Amphibian larva need oxygen in the water to breath. Water becomes depleted in oxygen in several ways. Driving or pulling logs through wetlands causes water to become very silty. This silt depletes oxygen levels. Temperature also affects oxygen levels in water. As water temperature rises the amount of oxygen contained in the water may be depleted. Also, blooms of aquatic vegetation/algae can rapidly deplete the oxygen supply.
- 3). **Food**: Larval frogs are herbivores and eat plant and algae. Larval salamanders, however, are carnivores and require small insects and/or worms to eat.

Invasive Species

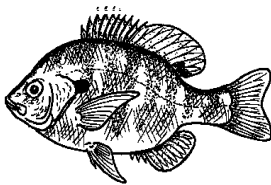
Non-native predators are a major problem for native amphibians.

Bullfrogs (*Rana catesbeiana*), can decimate native populations of amphibians. Bullfrogs eat everything they can fit in their mouths. This includes other frogs, salamanders, turtles, and ducklings.



Bull frogs are the largest frog in North America and can grow to more than 6 inches in length.

Introduced fish like **bluegill** (*Lepomis macrochirus*) are a big problem for larval amphibians. Small warm water fish, such as bluegill, that occupy near shore habitats consume tadpoles and salamander larva



Young bluegill feed on plankton, but as they grow the diet shifts to aquatic insects and their larvae.

To encourage amphibians in your wetland do not stock non-native fish or bullfrogs in ponds, lakes and stream, and warn your neighbors of the threat these animals pose to local amphibian populations.

If bullfrogs or introduced fish are currently on your property your local fish and wildlife officer can advise you on methods of controlling or removing these species. (<http://www.wa.gov/wdfw>)

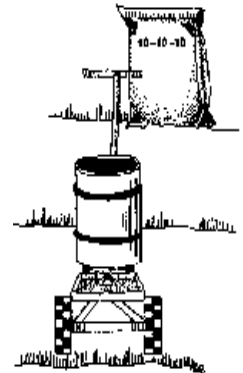
Chemicals

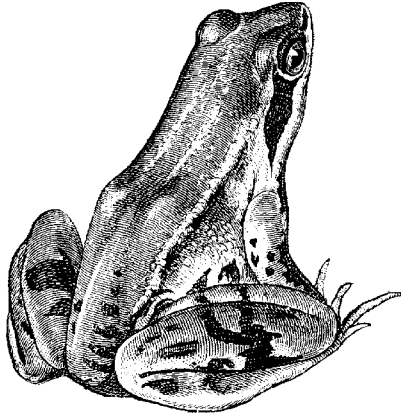
Amphibians are very sensitive to water pollution. Aquatic amphibians have **gills** that allow them to take oxygen from water. Small amounts of pollutants in the water can have dire effects on amphibians.

Pesticides can kill amphibians or cause physical deformities.

Fertilizers can also kill amphibians and it can also promote the growth of algae. Algal blooms deplete the oxygen in the water, and promotes the growth of parasites that may be harmful to amphibians.

Property owners should limit the use of any chemicals near lakes, ponds, streams, and wetlands. Substituting non chemical methods of fertilizing, and weed removal near wetlands can have very positive effects on local amphibians.

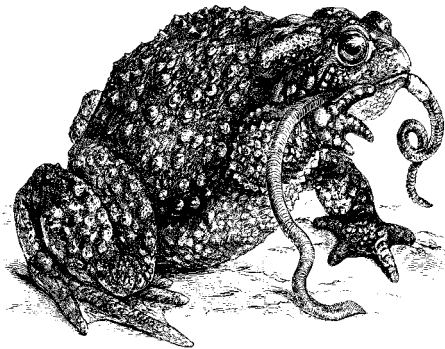




Frogs and Toads

Frogs have extensive webbing on their back feet, which help them adapt to a primarily aquatic lifestyle. Their hind legs are long and powerful, and are perfect for swimming and jumping.

Toads have a warty appearance, with much drier skin than frogs. Their back legs are also shorter so they hop rather than leap.



Salamanders

Salamanders are amphibians with tails. Although many species are common they are difficult to find, except during the breeding season when they are migrating to their breeding areas.



Does your land provide:

- Stream or pond?
- Natural seeps or springs?
- Riparian vegetation bordering all water areas?
- Accumulations of woody debris in and around wet areas?

If you answered yes to any of these questions, you may be providing habitat suitable for amphibians. To increase the quality of this habitat, take care to protect all riparian areas by maintaining riparian vegetation, avoiding road construction along streams, and restricting grazing.

Other questions to ask are:

- What species currently inhabit your local pond?
- What kinds of fertilizers and pesticides are used near or drain into water?
- How can your site best be managed to contribute to amphibian conservation at a local level?
- What are the land-use activities within and surrounding your site?

For additional readings on amphibians of the Pacific Northwest these fieldguides are recommended:

Amphibians and Reptiles of the Pacific Northwest. 1983. Ronald A. Nussbaum, Edmund D. Brodie, Jr., and Robert M. Storm. University of Idaho Press.

Amphibians of Washington and Oregon. 1993. William P. Leonard, Herbert A. Brown, Lawrence L. C. Jones, Kelly R. McAllister, and Robert M. Storm.

Seattle Audubon Society.
Field Manual of Oregon and Washington

Amphibians. 1996. Charlotte C. Corkran and Chris Thoms. Northwest Ecological Research Institute.

Glossary

Aquatic: Growing or living in water

Cutaneous Breathing: Breath through the skin.

Gills: The respiratory organ of aquatic animals.

Hermaphrodite: An individual Including, or being of, both sexes.

Invasive Species: An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Larva: The early form of an amphibian prior to transforming into the adult form. A tadpole is the larva of a frog.

Metamorphosis: The physical transformation of a larva into an adult. For example, a tadpole metamorphoses into a frog.

Non-native: A species that does not occur in that area. Introduced by humans, accidentally or intentionally.

Dispersal: The spread of a group of organisms into new habitats.

Riparian: Distinctive zones of vegetation adjacent to streams, rivers, and lakes.

Terrestrial: Living on land and not in water.

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