



# Amphibian Decline



What do frogs, toads, and salamanders have in common? They are all *amphibians*. So, what exactly does that mean? Amphibians are animals that hatch from eggs often laid in water and that remain there during their larval or tadpole stages. Tadpoles graze on algae and small organisms. Adult amphibians live mostly on land, often returning to the water to breed and hibernate. The word "amphibian" is derived from the Greek "amphi" and "bios" which means two lives and refers to the aquatic tadpole stage and the terrestrial adult of frogs, toads, and other amphibians.

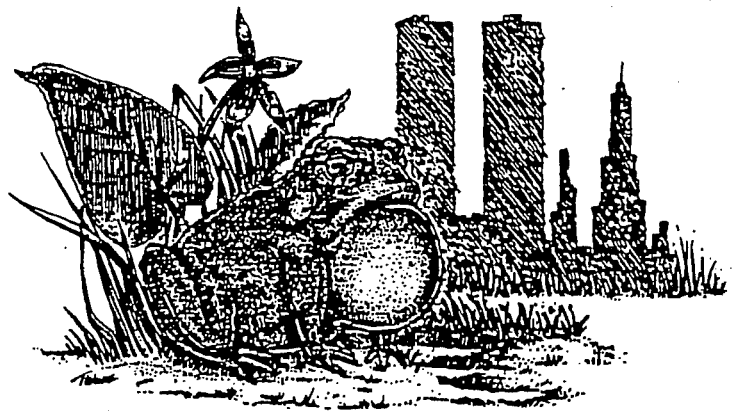
Unlike birds and mammals that use energy from food to generate heat to warm their bodies, amphibians depend upon on the sun to warm them. Because of their permeable skins, amphibians must replenish lost water while basking. This is why frogs sitting in full sun are often also sitting in water along the shores of ponds, lakes, and rivers. Another interesting fact about amphibians is that they do not drink water, but absorb it and much of the oxygen they need through their permeable skin.

## The Mystery of Amphibian Decline

Historically, frogs and other amphibians have been survivors. They have lived through the last two extinction episodes, including the one that saw the end of the dinosaurs. Amphibians are found from the southern tips of Australia, South America, and Africa to north of the Arctic Circle. They live in deserts, rain forests, tundra, caves, on mountaintops, and in our backyards. Amphibians have long managed to prosper despite the widespread changes in their habitats.

So it was strange and alarming when amphibians began to disappear at unprecedented rates around the globe. Even previously abundant and common species like leopard frogs were becoming harder to find. It was at the 1989 First World Congress of Herpetology that scientists made a startling discovery that all over the planet their colleagues were noticing amphibian declines and disappearances. Until then, there had been no scientific studies of this phenomenon and virtually no data existed to give a clear picture of the status of amphibian populations.

In addition to widespread decline, there has been an increased incidence of amphibian deformities. In 1995, students on a field trip to a pond in Minnesota discovered large numbers of frogs with misshapen, extra, or missing limbs. About 50% of the northern leopard frogs they examined that day were deformed. Since then, reports of amphibian deformities from other parts of North America have drawn public attention. Deformed amphibians are not a new phenomenon, but reports were only infrequent until recently. Since 1995, reports have become increasingly common, and a number of scientists are looking for the cause.



## What You Can Do To Help Amphibians

**Protect Existing Habitat.** To help preserve habitat for frogs and other amphibians in your community, educate citizens and community leaders about the importance of protecting existing natural habitats, such as woodlands and wetlands, and the importance of keeping your watershed healthy.

Different kinds of frogs live in different habitats. Some like wet places and some like forests. If you are aware of a population of amphibians, you can inform property owners, park employees, or local industries about them and of your interest in their survival. Let others know that you would like these areas preserved. Ask people involved in activities that might impact the area to take into consideration that living things are found there. If it is necessary to use herbicides or pesticides near a stream, lake, or pond, or if it is necessary to drain wet areas, ask that for a delay until after the amphibians and their offspring have left the water source.

**Landscape Naturally to Keep Local Streams and Wetlands Healthy.** Not everyone can live on the banks of a stream, river, lake, or other wetland, but we all influence the health of aquatic creatures in those habitats by the way we manage and care for our yards. Create a Backyard Wildlife Habitat landscape and encourage your neighbors to do the same. Together, your actions are cumulative, and can make a difference in the health of your watershed. Landscape with plants native to your region and don't use pesticides or commercial fertilizer, as they are common watershed pollutants. Reduce the size of your lawn or replace it altogether with a water-wise "ecolawn" or a meadow of native wildflowers and grasses. This will not only attract birds and beneficial insects, but requires no pesticides and infrequent mowing. Choose a variety of plants with different root depths and structure to improve the stability of your soil and the drainage of rainwater into the ground. Limit the amount of storm water leaving your property with densely planted buffer areas along your property's perimeter, or create a storm water marsh. Utilize new and existing wetlands and land features as habitat and storm water run off filtration. If you live near a stream, plant trees or other vegetation to shade the water, provide food and habitat for aquatic wildlife, and act as a buffer against erosion and runoff.

**Create a Frog Pond in Your Backyard or Schoolyard.** Water is especially important to amphibians since this is where most of them lay their eggs and spend their egg and tadpole stages of life. A small pool or pond for wildlife can be created as part of almost any Backyard Wildlife Habitat project or habitat-based project on school grounds. The location of your pond will determine the kinds of frogs and other amphibians that will breed there. Amphibians can travel quite a long distance to breeding ponds, but the closer your pond is to existing wetlands, ponds, or streams, the more likely they will colonize and breed in new ponds. After one or two frogs breed in your pond, their offspring will return each year to breed in the habitat that you have created. Let the frogs come to your pond naturally. *Do not take tadpoles from other areas to stock your pond, unless you have approval from a local naturalist or wildlife expert, and even then it is important to only take tadpoles from water sources very near your new pond so that they will be locally adapted.* Locate your pond so that it fits into the landscape as naturally as possible. Think about ways to carefully use runoff from the yard or roof down spout to help keep the water level high, and make sure to have an overflow to divert excess water away from the building. A plastic liner can be used to keep the water from soaking into the ground.

Your frog pond can be almost any size or shape. For the most natural look, avoid straight lines and make sure that the edges are gently angled so frogs and other wildlife can enter and exit the easily. Add native aquatic and wetland plants to provide cover and perching places for wildlife. All ponds take time to develop into good amphibian habitat. New ponds cannot replace the complex ecosystems of established wetlands, and this is why it is so important to protect existing ponds and wetlands. The quality of your new pond's habitat will improve when plants and algae are established, and when decomposed plant matter has settled to the bottom, forming a source of nutrients for tadpoles and other aquatic life.

**Help Scientists Solve the Mystery of Frog Decline.** Participate in a scientific monitoring projects, such as:

**North American Amphibian Monitoring Program (NAAMP):** Several NAAMP monitoring projects rely on the enthusiasm and commitment of volunteers. Data collected by volunteers becomes part of the global pool of information being used to understand why amphibians are disappearing and how we can save them. Web site: [www.im.nbs.gov/amphibs.html](http://www.im.nbs.gov/amphibs.html).

**North American Reporting Center for Amphibian Malformations (NARCAM):** In cooperation with the scientific community, NARCAM's web site is designed as an avenue for people to report sightings of amphibian malformations in North America. Web site: [www.npwr.usgs.gov/narcam](http://www.npwr.usgs.gov/narcam).