

■ Many household products, such as kitchen, laundry, and bath disinfectants and sanitizers, flea and tick sprays and powders, and swimming pool chemicals, are pesticides. Try to avoid using these substances in excess or near water sources.

Other Suggestions

■ Keep litter, pet wastes, leaves, and debris out of street gutters and storm drains. These outlets drain directly into lakes, streams, rivers, and wetlands. Pet wastes contain bacteria and viruses that can threaten fish, wildlife, and people.

■ Avoid dumping oil, antifreeze, or other household chemicals into storm drains or sewers, down the drain of your sink, or into the toilet. Contact your local Solid Waste Management Office to find out how to dispose of these materials properly.

You can help keep the environment clean and the frogs healthy by following these simple tips. If everyone does their part to protect the environment, all types of fish and wildlife, including frogs, will enjoy a cleaner, healthier environment.

Many of the methods described above are part of an Integrated Pest Management (IPM) approach to pest control. IPM is a common-sense approach that uses good planning, pest monitoring, and appropriate control methods, including the judicious use of pesticides when necessary, to get the best long-term results with the least disruption of the environment. To get more information on IPM, check with your County Agricultural Extension Service, the National Pesticide Telecommunications Network, environmental organizations, or your public library. Many state universities have IPM information that you can access through the World Wide Web. Other lawn and garden care information sources include your state's natural resource agencies, native plant societies, local conservatories, and greenhouses.

Surf the World Wide Web

Several web sites can teach you more about caring for frogs, your lawn and garden, backyard wildlife conservation, and reducing non-point source pollution. Here are a few web sites to get you started:

The U.S. Fish & Wildlife Service's Environmental Contaminants Program: <http://contaminants.fws.gov/Issues/Amphibians.cfm>

The U.S. Environmental Protection Agency's Office of Pesticide Programs: <http://www.epa.gov/pesticides>

The Natural Resource Conservation Service's Backyard Conservation: <http://www.nhq.nrcs.usda.gov/CCS/Backyard.html>

The National Biological Information Infrastructure's Frog Web: <http://www.nbio.gov/frogweb/froghunt.html>

National Pesticide Telecommunications Network: <http://nptn.orst.edu> or call 1 800/858 7378

U.S. Fish & Wildlife Service
Division of Environmental Quality
4401 North Fairfax Dr., Suite 322
Arlington, Virginia 22203
703/358 2148
<http://contaminants.fws.gov>

U.S. Fish & Wildlife Service
<http://www.fws.gov>

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U.S. Fish & Wildlife Service

Homeowner's Guide to Protecting Frogs

Lawn and Garden Care



Amphibians, such as frogs, toads, and salamanders, are highly susceptible to contaminants, including fertilizers, weed and pest killers, and detergents, released into their environment. This is because amphibians breathe, at least in part, and absorb water through their skin providing an easier way for contaminants to enter the animals bodies.

Amphibian eggs and larvae (tadpoles) are especially susceptible to these toxic substances. Exposure to contaminants during development can lead to frogs with many different types of malformations including frogs without eyes, with extra or missing legs and, in some cases, the malformations may be deadly. Contaminants biologists from the U.S. Fish & Wildlife Service are currently studying the effects of these contaminants on frogs. They are conducting surveys across the United States to learn more about the possible role that contaminants play in amphibian malformations.

Homeowner's Guide to Protecting Frogs

Homeowners use up to 10 times more chemical pesticides per acre on their lawns than farmers use on crops, and they spend more per acre, on average, to maintain their lawns than farmers spend per agricultural acre. During a rain, the pesticides and fertilizers you put on your lawn can be carried by runoff and end up contaminating a stream or wetland dozens of miles away. Contaminants can also be carried for long distances through the air and deposited on land and in water by rain or fog. Such examples of pollution are called "non-point source" pollution.

You may not think that you can make a difference, but caring for your lawn in an environmentally sensible way can have a bigger impact than you might think. Your lawn is only a small piece of land, but all the lawns across the country cover a lot of ground. That means your lawn care activities, along with everyone else's, can make a difference to the environment. If you use pesticides and other chemicals to

maintain your lawn and garden, you can help reduce the amount of pollution reaching our nation's waters and harming frogs, as well as other fish and wildlife, by changing the way you care for your yard.

Choose Non-Chemical Weed Controls Whenever Possible

Mulching, spading, hoeing and pulling up weeds are good ways to avoid weed growth rather than applying weed killer.

Minimize Fertilizer Use

Over-fertilization is a common problem. Fertilizing more than the recommended rate does not help plants grow better and often harms them. In addition, excess fertilizer will likely wash into streams and rivers and may lead to amphibian deformities and deaths. Researchers at Oregon State University recently discovered that even low levels of nitrates (a compound found in fertilizers) are enough to kill some species of amphibians. Help prevent pollution from fertilizer by taking these actions:

- Leave the grass clippings from mowing to decompose on your lawn (feeding your lawn this way is equal to fertilizing it once or twice a year).
- Use compost in your garden to develop healthy soils and reduce the need for chemical fertilizers.
- Have your soil tested to find out exactly what nutrients it needs in order to avoid applying unnecessary fertilizers. Your County Agricultural Extension Service will test your soil for a reasonable fee.
- Use organic fertilizers rather than synthetic ones. Organic fertilizers release more slowly into the environment and create healthier soils.
- Apply fertilizer when the soil is moist and lightly water. This will help the fertilizer move into the root zone

instead of blowing or washing away. However, be sure to check the weather forecast in order to avoid applying fertilizers immediately before a heavy rain which may wash the fertilizers into the nearby streams.

Reduce Your Dependence on Pesticides

- Calibrate your applicator to make sure you apply the correct amount of fertilizer.
- Minimize the attraction of pests such as rats, therefore reducing the need for pesticides, by moving wood piles away from the house and clearing away litter and garbage.
- Provide good drainage to prevent standing water that will attract pests such as mosquitoes. This will eliminate the need to apply bug sprays.
- Plant native grasses, shrubs, and trees. Native plants are often hardier than non-native plants and less susceptible to pests and disease.
- Put an assortment of plants in your yard to increase biological diversity and encourage a variety of beneficial organisms that provide natural pest control.
- Rotate the plants in your annual garden. Changing the type of plants you grow each year, makes it harder for pests dependent on a certain type of plant to become established, and therefore, eliminates the need for pesticides.
- Grow plants that are natural insect repellents, such as lemon balm, among your flowers and vegetables to help keep unwanted insects away.
- If you use bug spray, make sure it does not contain DEET, which is extremely harmful to amphibians.