

A Guide to Building a Pond to Attract Frogs



Water is a great way to draw wildlife to your backyard. Backyard ponds can provide habitat for birds, butterflies, frogs and fish. This guide will provide you with information tailored to building a frog pond that will attract amphibians to your backyard.

If you're not the building type, you can always purchase a [complete pond kit](#) to get started. Be sure to read the information below about pond location, maintenance, and surrounding habitat if you purchase a pond kit.

Attract Frogs with Proper Habitat

Many amphibians have a complex life cycle, requiring not only a pond area in which to lay eggs, but also enough nearby dry land to find food and shelter. Others are completely aquatic, spending their whole life in water. Some are completely terrestrial, living their whole life on dry land.

A pond with lots of hiding and feeding cover will attract frogs and keep tadpoles safe from fish.

Pond-breeding amphibians are particular about where they lay their eggs. Those that lay their eggs in wetlands need very slow-moving or stagnant water, and a water level that doesn't drop much during the spring breeding season (February through May). These amphibians need shallow areas between 1/2 foot and 3 feet deep. They usually attach their egg masses to or among plants, so they need small plants with thin, flexible stems between 1-4 mm in diameter.

Even amphibians that lay eggs in ponds live part of their adult life on dry land. For this, their habitat should include trees and shrubs for protection from predators. They also need leaves and fallen logs to hide in during cold weather. Protected corridors connected to other wetlands prevent too much inbreeding, and provide pathways for new amphibians to recolonize in case a drought, flood, water quality problem, or some other stochastic event wipes out a local population.

Where to Locate your Frog Pond

The pond should be located on low ground that naturally collects water and where pools form in the spring. If the pond is located near a building, water can be redirected to replenish the pond each time it rains.

Ensure the pond is located where amphibians can enter and exit without risking death. Urban populations of toads may have high level of predation due to large raccoon populations, or die as road kills during migrations to and away from garden ponds. There have been many documented incidences

of toads, unable to climb concrete road curbs, suffering a high death rate due to vehicles. However, toads produce over 5,000 eggs and we can expect even in pristine areas that only 50 toadlets will survive their first year (1% of the egg mass).

Amphibians are attracted to a pond by the size of its reflective surface.

The pond should be located away from manure, and chemical contamination sources such as runoff areas from composts, pastures, septic tanks and treated fields and lawns. Ammonia released by manure and many other fertilizers during wet periods has been found to affect tadpoles of amphibians. Runoff, in this case, should not be directed to the pond. After a period of drought, nitrate and other salts can be found at high concentrations in the front zones of runoff. Subsequent rainfall then creates a "toxic wave" retarding and preventing frog tadpoles from developing. The high levels of nutrients found in the runoff may also cause algae blooms. A vegetation buffer strip around the entire pond will reduce erosion and help filter sediment, fertilizer, pesticide and other contaminants before they enter the pond.

Attracting Frogs with Pond Size & Shape

Amphibians are attracted to a pond by the size of its reflective surface. If the pond surface is too small, amphibians will not notice it. Smaller ponds suffer from temperature fluctuations and take longer to become settled and balanced. There needs to be enough bacteria and algae on rocks and the bottom to feed tadpoles, and sufficient aquatic insect production to feed the adult frogs or toads.

Amphibian ponds should be no smaller than 12 feet long and 6 feet wide, and at least 1.5 feet deep. The pond should be big enough and deep enough to prevent predators such as birds, snakes and raccoons from having access to the center of the pond. Amphibians will rest or bask along the edges of a pond, but retreat to deeper water when frightened.

A shallow shoreline or shelf will provide growing areas for emergent plants and spawning areas for egg laying. Alternating shoreline depths will allow you to create different habitats including a wet meadow, a rock garden, or a cattail area. In the winter, the shallow bank will allow ice to expand out of the pond so damage does not occur to the liner.

Choosing a Pond Liner

Pond liners keep water from seeping into the soil. Even in heavy clay soils, a liner is necessary. For a larger larger pool where you can design your own shape, we recommend using a polyvinyl chloride (PVC) liner. Use a liner specifically designed for pools. While other plastics initially may be cheaper, many are not resistant to ultraviolet light and will break down quickly. Some plastics may also be toxic to fish.

PCV pond liners come in different thicknesses. A thicker liner tends to be more resistant to punctures. While expensive and requiring more expertise to install, cement is also an option as a pool liner. If you use PVC, you will need to get a liner large enough for your pool. To determine how large a piece you will need, determine the maximum width, length, and depth of your pond. Multiply the maximum



depth by 3. Then add this number to both the length and width. This will allow enough plastic to be securely held down around all pond edges.

Excavating your Amphibian Pond

You can put in a backyard pond anytime the ground is not frozen or overly wet. Plan on at least a weekend to install and landscape.

First, outline your pond in the proposed area with a piece of rope. Natural debris removed from the pond area may be useful when creating wildlife habitat around the pond, so when stripping off the turf, save any large pieces to be put around the edge of the pond. Smaller pieces can be placed in a compost pile. Digging should be done in layers so that the topsoil can be kept in a separate pile. Excavate the pond so that it is level, and to a size allowing for a waterproof barrier with its protective matting, and also for a layer of sand at least three inches deep to cover the whole pond bed. You can use pegs, a straight board and a spirit level to make sure the water level will be the same on all sides of the pond.

Installing PVC liner for your Pond

When you build the pond, choose a sunny day with no rain in the forecast for a couple of days. Sun will warm up the liner, making it a little more malleable. Before installing a flexible liner, check it for manufacturing defects (holes and weak points), and line the pond excavation with an inch of sand.

1. Remove all sharp objects and rocks from the excavated area and make sure the soil is packed down hard and level.
2. To help prevent punctures in the plastic, put a one-inch layer of damp sand on the bottom of the excavated area.
3. Install the liner by placing it over the hole and holding it firmly with a line of bricks.
4. Place a garden hose in the middle of the pond and fill it with water. The weight of the water will settle the liner to the shape of the pool. When the pool is filling with water, you can stand in it barefoot to help the liner fold in the corners, and to ensure that the liner is not being pulled down unevenly. This can create a potential leak when the pond is filled up to level.
5. Tuck the edge of the liner under 15 cm of soil, and keep it hidden underneath stones.

Establishing Pond Plants

Let the pond sit for a few days before adding plants. This allows chlorine to evaporate from the water. Chemicals are also available that will quickly neutralize chlorine and other harmful compounds.

For the pond, consider a mix of emergent, submergent, and floating species. Emergent plants, those that have their roots in the water but their shoots above water, can be added to the margins of pools. Some examples are cattails (*Typha* spp.), arrowhead (*Sagittaria* spp.), and water lilies (*Nymphaea* spp.). Submergent species, or those that remain underwater, are often used as oxygenators. These are plants that remove carbon dioxide from the water and add oxygen. These plants are essential in most ponds to keep the water clear. Floating species or those that are not anchored at all in the pond include plants such as duckweed (*Lemna minor*), water lettuce (*Pistia stratiotes*), and water hyacinth (*Eichhornia crassipes*). While attractive, water hyacinth and water lettuce can be serious weed problems in the South. Since they are not winter hardy, there is no problem with them spreading in northern climates. While not as effective as oxygenators, these plants help keep the water clear by limiting the amount of sunlight that algae receive.

Place the plants at various depths. Emergent and submergent plants should be planted into pots. Fill the container about half full with a mixture of good garden topsoil. Do not use potting mixes or peat moss. These are too light and will float out of the pot. Place the plant on top of the soil and fill the container with topsoil within one inch of the top.

When planting water lily rhizomes, make a mound of soil in the middle of the pot. Place the rhizome at a 45 degree angle. The crown of the rhizome should be toward the center of the pot. Cover the roots with soil, but not the crown.

In all cases, add a layer of gravel to the top of the pot. This will help keep the soil from floating out and prevent fish from digging in the soil. Slowly place the pots in the pool to keep soil from floating out. Place pots on bricks to get the desired height. Floating species can be placed directly into the pond with no other care needed. Plants should cover 50 to 70 percent of the water surface.

Pond Maintenance

Algae is a common problem in newly established ponds. The water often becomes an unsightly green after a few days. While your first instinct may be to drain the pond and start over, this only prolongs the problem. Once a pond is "balanced," are usually kept at an acceptable level. A balanced pond is one in which the nutrients are at the appropriate level for the plants present. Excess nutrients and light are needed for algae. Reducing the nutrients and decreasing the amount of light entering the water will help reduce algae. Floating plants or those with broad leaves such as water lilies will help reduce the amount of light available for algae and compete for available nutrients. Scavengers such as snails will help clean up wastes from the bottom of the pond.

Excessive plant growth, especially of free-floating plants, may be a problem. Periodically skim off excess growth of duckweed, water lettuce, and other floating plants. Monthly, prune dying plant material. Clean out some of the decaying plant material that has accumulated in the bottom of the pond in the spring. Remember that a natural pond is not a swimming pool and too much cleaning can do more harm than good.

Attract Frogs with Surrounding Pond Habitat

To improve the area around the pond, place native emergent plants around the edge to provide cover for adults and emerging toadlets and froglets. Trees should be planted some distance from the edge of the pond, because excessive shading reduces wildlife diversity and productivity. Any dead timber should be left standing or can be added to provides habitat for species such as beetles and woodpeckers.

A few rock piles and logs arranged around the pond will provide shelter and refuges from predators. You can provide moisture by having shady areas where dew collects, moist patches of soil, and rotting vegetation. Rocky retreats for toads can be made by placing stones to form a rocky burrow about 4 inches high with a sandy floor where toads can dig. You can use pieces of broken concrete blocks to allow access to the toad chamber and plant ferns to shade the area.

Some nurseries now sell [toad shelters](#), or you can make one yourself out of a large clay flower pot. Simply drill a series of holes for a toad size opening, and chip out the drilled section with a hammer. Place one or two of these upturned flower pots in shady locations in your garden. Adding a [toad light](#) between the rock garden and a lawn area will attract insects for the toads.

Winter Habitat for Frogs

The hibernating habitat required by an amphibian will depend on the species. Some hibernate underwater, others in leaf piles, compost heaps, or underground tunnels. For amphibian species that hibernate under water, the pond will be deep enough to prevent it from completely freezing. Terrestrial hibernators dig deep into soft garden soil, beneath the frost line, to spend the long, freezing months in dormancy. To make the area even more amphibian friendly, dig a hibernaculum for terrestrial hibernators. First, excavate a hole at least 3 feet square x 3 feet deep. Fill the entire hole with soft sand, and cover the surface with compost to keep the hibernaculum warmer and give overwintering amphibians additional protection from freezing temperatures.

Certify Your Backyard as a Wildlife Sanctuary

After you have followed Sage's How-to Attract Frogs Guide and our other [How to Attract Wildlife Guides](#) to providing habitat to attract frogs and other wildlife to your backyard, you can certify your backyard as a wildlife sanctuary. As long as you are providing the four basics for habitat specified in the Sage How-to Attract Wildlife Guides, including food, water, shelter and a place to live, you qualify.

Along with a personalized certificate, you will receive a Backyard Wildlife Habitat sign to post in your yard. This sign is a great way to show your neighbors and community that you're working to attract frogs and other wildlife and provide a natural habitat for the animals that visit and live in your yard. Your backyard will also be entered in the National Registry of Backyard Wildlife Habitat Sites.

For an application to certify your backyard as a wildlife sanctuary, please visit the National Wildlife Federation's [Application for Certification](#).