

Loudoun Wildlife Conservancy

People and Wildlife Living in Harmony

Welcome Frogs into your Garden — Build a Frog Pond

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Frog ponds are a wonderful addition to any garden. They can be as large or as small as you want and can be quite rewarding. The basic needs of frogs, toads and salamanders include plenty of moisture, shelter and food. This means providing water, native plants of various heights and types, and rocks and logs.

Materials Needed:

- Plastic pond liner — this keeps the water from seeping into the ground. Select a liner that is resistant to ultra violet light and specifically made for outdoor ponds. Liners not made for ponds are often toxic to amphibians and will break down over time. You will also need to determine how large a piece of liner to purchase. To do this, determine the maximum width, length and depth of your pond. Then, multiple the maximum depth by 3 and add that to the maximum width and length. This will give you enough extra liner to allow the plastic to be secured around the edges.
- Wet sand
- Gravel
- Water
- Rocks and logs
- Native water plants

Steps to Building Your Pond:

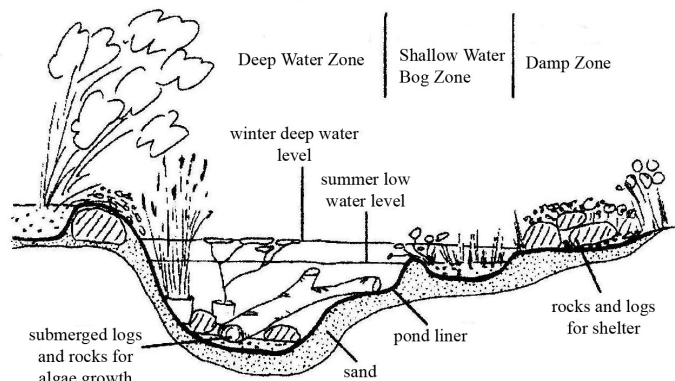
1. **Select the Site:** When selecting your site, keep in mind that tadpoles need shade. Your pond should be placed so that it is in the shade about 70% of the time. Once you have selected the location, create the outline on the ground with a piece of rope or garden hose to determine the shape and dimensions you like. If you can see the outline from your house, look at it from different windows and locations to make sure you like the shape. Mark the outline on the ground with spray paint.
2. **Dig the Hole:** Ideally, there should be three levels in your pond: a deep end, a shallow bog-like zone, and damp wetland-like edges. By creating these different levels, you will have a deep area that enables both escape from predators and hibernation in winter, shelves for plants that add interest to your pond as well as hiding places for tadpoles, and nice sloping sides that facilitate entry and exit to the pond. Digging of the pond should be done in stages. When you start digging, begin about 3 inches outside of your outline and remove the topsoil. Save this off to the side so you can replace it later. After the topsoil has been removed, dig the pond itself by starting in the middle and working outward so you can form the shelves and slopes. Slopes should be at about a 20-30 degree angle. Shelves should be about 6-10 inches below the water. Avoid vertical walls since animals, including adult frogs, toads and turtles, can become trapped in your pond.

Levels:

Deep end: One end of your pond should be approximately 3 feet deep so frogs can winter over in the mud and not freeze to death. Dig 2-3 inches deeper than the final depth of your pond so you can take into account the 2" of sand, the liner and rocks.

Shallow, bog-like area: These shallower areas will provide shelving which allows you to have a variety of plants and heavier vegetation. This provides refuge for tadpoles.

Wetland, shallow edges: Ponds need to have sloped sides so adult frogs, toads, salamanders, small mammals, box turtles, and others can easily get in and out. You can also add a natural "ladder" to facilitate escape. This could be a floating log that is secured to the edge of the pond at one end or a mesh that extends from the soil to below the water line.



SOURCE: Amphibian Research Centre

Along the shoreline you can create different habitats such as rock gardens, a cattail area and wet meadow. Also, a shallow shoreline helps keep your pond liner intact through the winter as the water freezes and thaws.

Be sure your pond is level so the water will not drain out. To do this, lay a 2' x 4' board across the width of one end of the pond. Set a carpenter's level on the board and make sure that the edge of the pond is level. Add topsoil to the edge if it is not and continue this process until you are certain that the entire pond edge is perfectly level. If the edges are not level, the liner will show where it is higher than the rest and could leak water where it is lower.

3. **Inspect:** Inspect the liner before installing it to make sure it does not have any holes. It will be easier to work with the liner if you do this step on a warm sunny day as the liner will warm up and be more flexible. Next, remove all sharp objects (roots, rocks, twigs) from the excavated area and tamp down the soil so it is hard and level.
4. **Add the Sand:** Lay a base of wet sand at least 2 inches deep to cover the whole pond bed.
5. **Position the Liner:** Place the liner into the excavated area and use bricks or rocks around the edges to keep the liner in place. Cut out large pieces of extra liner but save some in case you need to make repairs in the future. A typical liner will last 7-15 years, but there may be need for an occasional repair.
6. **Add the Water:** Bring the hose over and fill the pond with water. The weight of the water will settle the liner into shape in the pond. As the pond fills, you may need to stand barefoot in it to make sure the liner settles in evenly and is not pulled in one direction or another. Bury the liner under 6 inches of dirt along the edges and keep it hidden under stones.
7. **Add the Plants:** Let the pond stand for 3 days to let chlorine in your water evaporate. Then, add your plants, submerged rocks and logs. Emergent and submerged plants should be planted in pots

with a layer of gravel on top to keep the soil from floating out. Use bricks and stones to help vary the heights of plants. Plants should cover about 50-70% of the pond surface. Native plants provide shelter and shade within the pond and around pond edges. These help regulate water temperature and provide safe spots for amphibians to rest and escape from predators. Plants should be placed at the edges of the pond for eggs to be laid and for tadpoles to hide and feed. Let grasses grow up around the edges of the pond so froglets have a place to hide when they first emerge from the pond. Rock piles and logs around the edges will also provide a nice, varied habitat. Use a variety of plants: trees, shrubs, grasses, sedges, lilies and ferns. Around the pond, include a log or two and rock piles with openings for toads.

8. **Enjoy:** Wait and watch for amphibians to find your oasis.

Other Considerations:

In winter, you will need to keep a small opening free of ice in the water so that oxygen will continue to enter the water. Hibernating frogs will need this. A small bird bath deicer works well, or you can melt the ice with a pan of warm water.

When you need to top off the water in your pond, remember the water needs to be chlorine and chemical free. Therefore, if you are on city or county water where chlorine is added, or if you add chlorine to your well water, you will need to let the water stand for a few days in buckets before adding it to your pond. This is very important if amphibians are present.

Algae need to be present for the tadpoles to eat. When you first set up your pond you may experience an algae bloom. Resist temptations to clean this out. It is a natural phase for the pond. Once the nutrients in the pond become balanced, the algae will reach an acceptable level appropriate for the plants and animals present. Algae thrive on light and excessive nutrients. To decrease light you can add more plants, and the algae will compete for the nutrients and become less pervasive.

Do not include fish in your pond because they eat tadpoles. Filters and pumps will also kill your tadpoles. They will be sucked in and whirled as if in a blender.

Please do not purchase frogs or toads or relocate them from other areas. In both cases, you could be introducing species that are not native to your area. This has had terrible effects on local populations — especially where bullfrogs have been introduced. They eat native frogs, toads and salamanders and will move into other ponds outside your backyard decimating local populations. You could also be introducing diseases that could impact local populations. The best thing to do is to build the pond and let your native frogs, toads and salamanders find you. If you build your pond in the fall or spring, migrating animals may encounter your pond. It may take a year or two for amphibians to take up residence but be patient, and they will find you!

Additional resources:

Video: “A Practical Guide to Water Gardening.” This video provides step-by-step instruction on setting up a pond, as well as tips and ideas for plantings in and around the pond. Tips on using plantings to control algae and instructions for making bog gardens are also provided. Available through the Loudoun County Public Library.

“Ponds and Water Features,” American Horticultural Society. A small book that shows the basics of setting up a pond, including the different levels such as bogs and shores along the pond. Good explanations on both what to do and why. Available through the Loudoun County Public Library.

“Building Garden Ponds: 10 Step-By-Step Projects,” by Bryan Hirst. This book has some nice examples of natural ponds as well as drawings showing the side views. Available through the Loudoun County Public Library.

Lilypons Water Gardens, Buckeystown MD. Lilypons has all sorts of pond supplies as well as a wide variety of native American plants. They can also be found on the web at: www.lilypons.com.

Websites: There are numerous websites that provide information on setting up ponds, although many are geared for fish.