

The Bog Filter Really Works!

By Jeffrey E. Folloder

I have been an active aquatic hobbyist for over twenty years. In fact, my hobby has taken me from a small fifteen-gallon peaceful community experiment, through over forty aquariums of various sizes and the ownership of two tropical fish stores in Houston. The majority of the aquariums are gone now; I am down to only one in my bedroom. The tropical fish stores are a distant, albeit financially illustrative, vision. All I have really had to occupy my water-borne fancy is my five-year-old pond in my backyard.

My pond was designed and built using all of the knowledge that I had accumulated during my years of experience. It was carefully laid out, excavated, and lined using modern materials. I utilized mechanical filtration and had, what I assumed, was a good balance of plants and fish. I witnessed koi both leaping to their deaths out of the pond and neighborhood felines patiently "luring" them out of the water. I added food when I felt like it and experimented with various lilies and grasses. I listened to the water cascade down a hand-assembled waterway and suffered through about a billion tadpoles. All of this was set to the background of the most unappetizing scene of *water as thick as split-pea soup, and the same color, too!* I would change the filter media at least once a week; waiting any longer would assure that the submersed pump would seize. No help. I tried a subtle shift to techniques that I learned from salt-water aquaria: biological, wet/dry filtration. A lot of surface area for nitrifying bacteria in an ugly container that was definitely not pretty to look at. No help.

Fast forward to June of 1997. My friend Raquel showed off her pond to me. Her pond is a good bit larger than mine, but, the thing that really catches your eye is the fact that her pond is clear. Now, I'm not talking about sorta clear water; I'm talking water so clear that you can see to the bottom, even in Houston heat! I commented that she must have just completed a total water change and liner scrub. I was introduced to the bog filter. Same concept as the biological filter, just better conceived, bigger, and a lot prettier to look at. Well, I had to have me one of them thar bog filters! Raquel gave me a large portion of unused pond liner. I set to work digging out the shallow bog area I had chosen next to my pond and in less than 4 hours had finished construction in it's entirety.

Then, I was off to Nelson Gardens for selection of some appropriate bog plants. Outstanding advice was given and I eagerly made my purchases and set off for home to plant my bog. At this point, I was expecting a bit of success, not a lot. Raquel had warned me that for about a week my pond would be a silty, muddy mess and she was right. I went away on a business trip to Los Angeles for four days. When I came back, *beautiful, sparkling clear water!* Totally amazing. I even noticed that some of my goldfish had had babies! That's right: I've got clear water and I'm a father, too! It took less than one week to go from unsightly water to the original vision of my pond.

Bog Garden Construction—By Nelson Water Gardens

Bogs or wetlands are low-lying areas in the natural terrain where flora and fauna thrive in the moist environment. Technically, we are not creating a true bog garden. A bog is a habitat characterized by wet soggy soils and slow decomposition of dead plant matter. The soil is high in organic matter and very acidic with very specific plants adapted to these conditions. In the ornamental water garden, bog gardens are used as a bridge or transition between the water garden and terrestrial gardens. These bog gardens are created within the perimeter of the water garden. This type of "in pond" bog is constructed by building a permeable retaining wall to confine the soil and separate it from the open water of the pond. Moisture loving plants, plants that prefer their "feet wet but ankles dry" are planted in these area. Bog Gardens can be more than just a part of the water garden. They can stand alone as a



garden created solely to grow bog plants or become an active participant in the dynamics of a pond.

The Gravel Bog Garden

- Gravel is used as the growing medium in place of soil. Since gravel has no water retention capabilities, water garden construction techniques must be employed for a gravel bog garden. In short, the excavation must be completely waterproof and the top edge of the garden must be level.
- Dig your excavation, the length and width are up to you, your design and our energy level. The depth must be at least 12-18". Dig to 3' if you live in zone 5 and further North. Be sure the top edge is level.
- The soil is completely removed from this type of bog garden. Make arrangements to have it hauled away or better yet save for another gardening projects.
- Next lay down the waterproof material, EPDM Rubber is best.
- (Optional) provisions for additional water can be made by following step 5 of the Damp Garden.
- Partially, fill the excavation with 3/8" pea gravel.
- Select your bog plants and arrange on top of the gravel.
- Once you are satisfied with your plant placement it's time to knock the pots off of the plants and plant them soil ball and all in their designated spot. **DO NOT** rinse the soil off the plant roots before planting.
- Next, carefully fill in with the remaining gravel.
- Now fill with water.
- No need to keep a vigilant eye out for weeds, most weed seeds cannot germinate in the gravel—if a weed manages this feat, it's easy to pull out.

The Bog Garden as a Filter

Make the bog garden functional as well as aesthetic! By following the directions below you can create a bog garden that also acts as filter; henceforth referred to as the "Bog Gravel Filter". This style filter bog garden is really a variation of the traditional "in pond" bog but forces water through a perforated PVC pipe buried in the bog by a submersible pump located in the pond portion of the water garden.

- Follow the usual directions for building a liner pond. To provide for the bog gravel filter, just excavate this area to a depth of 12". Before laying in the rubber liner, build a retaining wall to separate the 12" deep bog gravel filter from the deeper pond. This wall should be 1-2" below the pond surface. **BE SURE TO ALLOW** for enough liner to go over this wall.
- Put a submersible pump in the pond opposite the bog garden and run pipe to the far end of the bog. Select a pump which will turn over the volume of the pond every 2 hours.
- The outlet of the pump determines the size PVC you will use, i.e. a pump with 1-1/2" outlet would use 1-1/2" pipe. Create a manifold to distribute the water evenly throughout the bog gravel.
- Drill the PVC pipe with 1/4" holes spaced approximately 3" apart and cap the ends. Your line of holes should point toward the bottom of the pond at a 45° angle. Gravel bogs that are 2-3 feet in width can be fed by a single course of pipe. Wider areas require additional lines spaced 2-3 feet apart. Lay the PVC pipe matrix on top of the liner then add the gravel to the bog gravel filter area. This layout is similar to setting up a septic system.
- Lay decorative rocks or stones across the retaining wall but do not mortar in the joints.
- Follow the directions for planting the bog above.
- Turn on the pump. Water filters through the bog, between the joints of the stonework on the retaining



wall and back into the pond. You'll be amazed at how quickly the water clears and how lush the plants will grow!

NOTE: An existing pond can be retrofitted with a bog garden by building a gravel bog garden nearby. The water can be circulated between the two gardens via pipework or a waterfall.

The Border Bog Gravel Filter

- This is another variation of an "in pond" bog and is the most natural looking bog garden of all.
- Dig the pond, with a shelf 12" deep all around it's perimeter. This shelf can be as wide or narrow as desired. Vary the width of the shelf around the pond for a natural look.
- Lay the liner into the pond excavation.
- At the edge of the shelf place tall rocks, if necessary these can be mortared into place. This creates a trench or planting pockets between the edge of the pond and the edge of the shelf bordered by the wall of the pond on one side and the rock wall on the other.
- Run your drilled pipework through the "trench" and attach to pump inside the pond.
- Follow directions for planting bog plants in gravel Steps 5-8 of the Gravel Bog Garden.

In conclusion

Bog Gardens and Bog Gravel Filters are both environmentally responsible forms of gardening. By setting up a Bog Garden you can create a lush garden yet use little water. And the Bog Gravel Filter works with Nature, you are in effect setting up an artificial swamp or marsh. Like swamps and marshes, the Gravel Bog Filter serves as a massive biological and phyto filter. Nitrifying bacteria thrives in the gravel bed reducing the organic wastes, while the plants effectively absorb the nitrates and other nutrients before they can be utilized by algae. You can jump start the bacterial activity by inoculating the gravel with any of a number of good bacterial starter products on the market. Maintenance is typically restricted to a little light pruning during the growing season and a thinning out of the plants each spring. This allows for plenty of room for the plants to grow and continue absorbing the free nutrients in the pond.

Suggested reading:

Pond and Water Gardens by Bill Heritage

The Water Garden a Practical Guide to Planning and Planting by Peter Robinson

Waterside Planting by Philip Swindells

The Stream Garden by Archie Skinner & David Arscott



Some Bog Plant Selections:

