

by Joseph G. Griffith

during the winter. Be careful of native species. Should you mistake the fry of Black Bass for Bluegills, you'll be in trouble. Bass will eat anything and have been known to leap from the water and catch birds. Bullfrogs will also eat birds.

Since the soil and water of most bogs is acid in reaction, the shrubs for such a garden should be both moisture and acid loving. It may seem to limit the choices, but it really doesn't. Some plants must have acid conditions to live and grow, but there are a great many others that can adapt to either acid or alkaline conditions.

When planting the shrubs for this garden, make sure that you incorporate peat moss in the planting hole. In wooded areas where the soil is naturally acid or neutral, it's not so important. Do not use lime in this garden. Many of the shrubs for this garden will be heaths (Heather, Azaleas, Blueberries, cranberries, etc.).

Unless the water is moving very slowly, water lillies won't grow properly. There are other plants that can be put directly into water and that will, in due season, send up emergent leaves and flowers.

Some areas of the country have naturally alkaline soils and water and there is a problem in creating acid conditions. The whole garden should have a decidedly acid reaction and one of the best ways of accomplishing this is by using aluminum sulfate, or some other acidifying agent available at nurseries.

Assuming two things; that you have a recirculating system for the water and that all of the plants are in place and the channels are filled with water, you can successfully acidify a bog garden. There is no point in changing the ph of a garden if you have to rely on a constantly renewed supply of water that is alkaline. It just defeats the whole thing.

Get a ph testing kit from an aquarium or pet shop. If the water is alkaline, mix a *small* amount of acidifier with water and pour it into the water system. Wait a minimum of three hours and test again. Repeat in small doses until you have the reaction desired. Test again in about a week and repeat if necessary. Once you have a stable reaction, leave well enough alone. This includes leaving the plant debris in the aviary. The leaves of most of the shrubs and perennials of this garden are acid and will help to maintain that condition in the soil.

Shrubs. Most of these plants have been

chosen on the basis of their love of water and wide adaptability to different climates.

Andromea glaucophylla, BOG ROSE-MARY. Although called Rosemary, this is a member of the Heath family and competes with Highbush Blueberry.

Azalea (Rhododendron), AZALEAS. The most water loving is the Swamp Honeysuckle (R. viscosum). May grow to 8 ft. and has sticky, spicy fragrant white flowers. Other Azaleas may be suitable in the higher parts of the garden since they are all moisture and acid loving. They are worth a try.

Callicarpa, BEAUTY PERRY. All of the callicarpas produce blue or purple berries. They prefer part shade.

C. americana, FRENCH MULBERRY, AMERICAN BEAUTY BERRY. Grows to 6 ft. and has large leaves. Flowers in May and June.

C. japonica, JAPANESE BEAUTY BERRY. To 6 ft. with pink or whitish flowers in August.

Chamaedaphane calyculata, CASSAN-DRA. A medium size shrub that is normally found with Highbush Blueberry and Bog Rosemary.

Cornus spp., DOGWOOD. Usually classed as trees, they have a natural tendency to stay small. All of them like plenty of water, but not much sun. If possible, give them an eastern exposure. Most dogwoods have white flowers except Pink Flowering Dogwood (C. florida rubra). Pick those that are either very slow growing or that stay small.

Daboecia cantabrica, IRISH HEATH. Grows 1½ to 3 ft. with leaves green above and grey below. Pale purple flowers from May to November.

Enkianthus campanulatus, NO COM-MON NAME. Try this deciduous shrub. It has good winter form, bluish-green leaves and bell-like flowers that are yellow with red veins.

Erica spp., HEATH. These have needlelike leaves and a soft appearance. Some are dry hillside plants while others like moisture, so be careful to buy those that are suitable for a bog.

E. ciliaris Dawn. The new growth of this plant goes through many color changes and adds interest to any planting.

E. tetralix, $1\frac{1}{2}$ to 2 ft. high with greyish foliage and rose-red flowers.

E. lusitanica (E. codonodes), SPANISH HEATH. Foliage is grass green and the flowers are pink and white. Slow grower to 10 ft.

Kalmia angustifolia, SHEEP LAUREL. This laurel is poisonous to sheep. Flowers are pink in clusters. About 2 ft. high.

K. polifolia, BOG LAUREL. Erect to 2 ft. Cluster of pink to pale purplish

BOG GARDEN

Nowhere in the temperate zone is there a richer grouping of plants and animals than in a bog. Bogs are almost the temperate counterparts of tropical rainforests. Actually, bogs and swamps are closely allied in that bogs are the forerunners of swamps. Marshes are also wet places, but they are dominated by grasses and sedges.

A bog is an area of wet land that has poor drainage and is dominated by a number of pioneer plants that are in the process of building suitable habitat for more permanent plants. Bogs often occur around the edges of ponds. When bogs reach the stage where they can support trees, they are called swamps. For our purposes, we can set the technicalities aside and work to create a habitat that is rich in water and water-loving plants.

An aviary that represents a bog MUST have a concrete footing that goes all the way around. The footing should be a minimum of $2\frac{1}{2}$ feet deep and if you can make it deeper, so much the better.

Decide on one corner for the feed-in pipe and choose one of the opposite corners for the return. Starting at the feeder pipe, dig a series of fairly deep trenches. Make sure that the trenches are all interconnected at both ends and that the connections all end up at the place where the return pipe will be. Although the water here should move slowly, you want to avoid creating places that will allow the water to stagnate. The soil from the trenches should be used to make hillocks and islands.

Before proceeding any further, consider the fish required. Any aviary that has open water will have some mosquitoes. The best control is to use some kind of fish to eat the larvae. In warm sections of the country, mosquitoe fish (Gambusia) are available from mosquitoe control departments, usually at no cost. Colder areas will require the use of small natives or that you maintain a small population of suitable kinds in an indoor aquarium flowers.

Magnolia spp., MAGNOLIA. Most of these are trees, but there are a few shrubs. Take care in planting that roots aren't broken; they may rot. Pruning should be done right after flowering and all cuts should be treated with tar to prevent bleeding.

M. liliflora, LILY MAGNOLIA. Grows to 12 by 15 feet. White flowers are pink outside.

M. l. nigra. A subspecies of the above, the pinkish flowers are purple on the outside.

M. sieboldii, OYAMA MAGNOLIA. 10 by 6 ft. with white fragrant flowers that may appear in summer as well as spring.

M. stellata, STAR MAGNOLIA. Slow to 10 by 20 ft. which indicates that it tends to spread. Pruning can control

places.

V. macrocarpon, CRANBERRY. This is the Cranberry of commerce. You may be able to grow this plant from seed from fresh berries in the market. The seed should be stratified (mixed with sand and placed in the refrigerator) for about a month before planting).

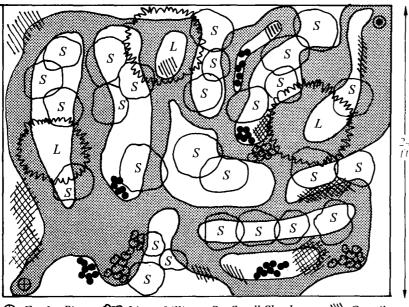
Perennials. Some of these are emergent, most are not.

Equisetum, HORSETAIL REED, SCOURING RUSH. This is a streamside plant of great interest. The last of a formerly great and ancient family, it has excellent form and deep green color.

Ferns. With these you can play as much as you like.

Grasses and sedges. These can be collected from the borders of ponds and swamps. They will provide food through their seeds and nesting materials after the

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⊕ Feeder Pipe
♥ Water Lillies S - Small Shrubs
♥ Cattails
♥ Return Pipe
♥ Iris
L - Large Shrubs
♥ Horsetail

it. The starlike white flowers are spicy fragrant.

M. s. rosea. A subspecies of the above, flowers are pinkish on the outside. *M. thompsoniana.* A horticultural hybrid, it reaches 12 ft. in about 4 years. The white flowers have a spicy scent.

Picea spp., SPRUCE. There are a number of dwarf forms of Spruce available in nurseries. Check for moisture requirements. Some species commonly grow in boggy ground.

Vaccinum corymbosum, HIGHBUSH BLUEBERRY. Mentioned in a previous article. It's one of the principle shrubs of boggy areas.

V. oxycoccus, TRAILING CRANBER-RY. The Cranberries are common in swamps and bogs. They tend to be lower growing than most other shrubs of such first year. In shallow muddy areas of the bog, you can plant paddy rice. Sow it fairly thinly so that the fish can move between the stems in their search for food. It is surprising how much seedeaters will enjoy the green seeds. It will also be useful as nesting sites for some of the birds.

Iris spp., IRIS. Any of the native Irises that live in marshy ground or stream borders would do well here. Japanese and Siberian Iris are spectacular additions to the list, the former for its shape and the latter for its deep blue color.

Nymphaea spp., WATERLILLY. Everyone knows these plants. Put them where the water is most sluggish. You don't have to plant them in tubs as you would if you had a concrete pond. Spatterdock is also a waterlilly. The flowers are goldenyellow and cup shaped. Some aquarium stores carry it.

Orchidaceae, ORCHID FAMILY. Bogs provide the richest habitat for temperate climate terrestrial orchids. If you are lucky enough to find a nursery that produces these plants, you can be as lavish with them as you like. I have already mentioned the Lady Slippers in a previous article and they are all likely to do well here. Some of the less well known are: Snake Mouth (Pogonia ophioglossoides), Dragon Orchid (Arethusa bulbosa), Grass Pink (Calopogon pulchellus), Purple-fringed Orchis (Habenaria psycodes), Yellowfringed Orchis (H. ciliaris), and Club-spur Orchis (H. clavellata). Reedstem Epidendrums would also do well in warm sections of the country.

Pontederia cordata, PICKEREL WEED. This is an emergent that is similar to the following, but the leaves are more rounded. Flowers are deep blue.

Sagitarria latifolia, ARROWHEAD. Plant directly in the water. This is a common aquarium subject that is hardy. The arrow shaped leaves that emerge in spring are different from those that remain below the surface. Flowers are white.

Typha latifolia, CATTAIL. This is one of the most typical plants of the bog. There are two things that must be done with this plant to keep it under control. Plant it in tubs that are sunk into the ground. Be sure that the soil level in the tubs is about four inches below the rim so that the plants won't "crawl out". When the flower spikes appear, cut them off long before they ripen. The seeds will sprout in any moist place. The plants will crowd the tubs, so divide them in the winter.

Birds. All of the Asiatic finches will take kindly to a bog, but not the Australian ones. Woodland thrushes, Old and New World warblers, flycatchers, titmice, ovenbirds, tanagers, hummingbirds, cotingas, mannequins, antbirds, touracos, rosefinches, siskins, weavers, wido-birds (not to be confused with wydahs), South American blackbirds and marshbirds, are some of those that like marshy places. Of course, all of the so-called water birds like this habitat, but they also need lots of room. If you can provide some upright dead logs, some of the woodpeckers should be happy in this aviary, as they like to forage in such places. With an adequate supply of small fish, you can also keep some of the smaller kingfishers. Keep a sharp eye out, they might be aggressive.

NOTE: Bogs are also the home of a number of carnivorous plants. Sundew, Venus Flytrap and Pitcher Plants all add interest to a bog. Since they are mostly low growing, keep them near the front so that you can see them.