Bog Gardening with Carnivorous Plants
By Gil Nelson

Top left: The little hooded pitcher plant (Sarracenia minor) is widespread in the Florida peninsula from about Lake Okeechobee northward to Jacksonville and the Big Bend. Top right: Yellow trumpet (S. flava) is one of the Panhandle’s more common and showy pitcher plants. Bottom left: White-top pitcher plant (S. leucophylla) is most common in the western Panhandle and is distinguished by its attractive two-toned leaves. Bottom right: This small garden is built in a shallow prefabricated pond about 12 inches deep. All photos by Gil Nelson.
A thorough reading of McPherson’s *Pitcher Plants of the Americas* – especially the relatively short chapter on horticulture and cultivation – is likely to enamor at least some readers with the prospect of growing these plants in the garden. You know how gardeners are – especially those of us already fascinated with thematic and mini-habitat gardens, or who just like digging around in sloppy, soggy soils.

Carnivorous plants are best grown in in-ground bogs – small or large peat-filled depressions that remain reasonably wet but provide little in the way of nutrients. In-ground bogs are easy to build, can be small or very large, and provide the perfect place to enjoy native carnivores and insectivores in residential landscapes. But be forewarned – there are about as many recipes for building a bog as there are people who build them. It seems that all active bog gardeners have at least one favorite formula; some have several.

At least five ingredients are common to most successful artificial bogs – peat, sand, plastic, water, and placement. Quality, type, proportion, and quantity of these ingredients are another matter.

Some bog gardeners use commercial mixes of Canadian sphagnum peat moss, perlite, vermiculite, and other minor disease resistant ingredients as their source of peat. Promix is one option. Others prefer unblended Canadian sphagnum peat (not to be confused with sphagnum moss). Actually, sphagnum is the key here and just about any good commercially available sphagnum peat will work.

The preferred type of sand is also variable. Many agree that playground, sandbox, and beach sands are all too fine and should be avoided. However, Peter D’Amato, writing in *The Savage Garden* (another book every bog gardener should own), recommends “washed ‘play sand’ meant for use in children’s sandboxes” because it is clean and likely to contain no contaminating particles. River sand and builders’ sand are mentioned most often by successful bog gardeners, either of which is satisfactory as long as it is well washed and free of impurities. FNPS member Lee Norris recommends pool filter sand because it is uniform in grain size, lacks impurities, is chemically inert, does not contain clay, and is

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readily accessible. Pool filter sand is somewhat expensive and may be best for smaller bogs, but is easily obtained from swimming pool supply outlets and large hardware stores.

The proportion of peat to sand also varies. Many gardeners use a 50–50 mix but some recommend much higher proportions of peat. George Sanko, director of the Georgia Perimeter College Native Plant Garden in Atlanta, recommends 75-80% peat, pointing out that the more peat in your mixture, the less quickly the bog will dry out in hot summers. Hal Massie, who has built numerous bogs in the Georgia Piedmont, also recommends slightly more peat than sand – 2 parts peat to 1 part sand – to prevent the bog from appearing unnaturally sandy. A few bog gardeners, such as Darwin Thomas of Cullowhee, North Carolina, who builds very successful 2 foot deep bogs, uses peat exclusively with no sand at all. Thomas cautions that saturating this much peat is challenging and should be done one thin layer at a time. Otherwise, you are likely to end up with lots of peat floating on 18 inches of water.

Garden pond liners, children's swimming pools, prefabricated backyard pond containers, or concrete-mixing tubs serve well as belowground bog containers. If you are fortunate enough to have a constant natural water supply and poor drainage, you may not need a liner. For most situations, however, a water-holding barrier of some sort is essential.

Whether to provide extra drainage for your bog depends largely on soil type and bog depth. Some gardeners recommend cutting slits or punching holes in the bottom of the liner to allow for drainage. If your bog has a sloping bottom, these slits or holes can be located on the downhill end. Others recommend punching holes in the side of the container, nearer to the ground surface. And still others recommend no holes at all. Hal Massie, for example, who has built bogs in such watertight containers as old wheelbarrows, says that drainage is not needed.

Deciding to provide drainage slits or holes may also depend upon the quality of your water. Mineralized water may leave residues that build up in the soil with evaporation. Drainage can retard, but probably not eliminate, this build up. Shallow bogs tend to dry out rapidly, especially when situated in full sun, and may perform better if allowed to dry by evaporation rather than by drainage holes. This is especially true for small container gardens. Shadier bogs, on the other hand, may remain too soggy without extra drainage. Bogs built over clay or poorly drained soils may require more drainage punctures than those built over well-drained, porous soils.

For those who lack sufficient space (or energy) for a belowground bog, most carnivores are easily grown in peat-filled containers. Aboveground or container bogs can be fashioned from a variety of vessels – small and large – ranging from old dish pans and plastic tubs to wheelbarrows, old wash tubs, concrete-mixing tubs, and small pre-formed pond liners. They should be carefully observed over time to determine how quickly they dry and whether additional drainage should be provided.

Water is a bog garden's life source. A natural seepage with a continuous flow of fresh ground water is preferred but is not possible in most home landscapes. An artificial seepage with a timed flow of tap water is also possible, but is often complicated, expensive, and requires careful adjustment to ensure consistency. In the absence of natural or artificial seepages and regular rain, most bog gardeners irrigate their bogs from above with stored rainwater or tap water, or with a soaker hose buried a few inches deep on the upslope end of the bog. During the heart of a hot dry summer, small, shallow bogs may need to be replenished once per week or more, whereas deeper bogs may do well with only occasional backyard watering.

How deep an inground bog garden should be is an open question. Recommended depths of 18 to 24 inches are most common. However, Hal Massie, writing in the July 2006 issue of BotSoc News (the publication of the Georgia Botanical Society), suggests that a depth of 6 to 8 inches is adequate, noting that bog plants often “thrive in shallow soil,” and Rob Sacilotto, in an online article Making a Bog Garden (www.pitcherplant.com/bog-making.html) recommends 12 to 14 inches. Although a depth of 24 inches is generally considered maximum, a few bog builders suggest depths to nearly three feet. Some of the best bogs I've seen are 8 to 12 inches deep. Regardless of the depth you choose, the sides of your excavation should be straight or only slightly sloping.

Bogs 18 to 24 inches deep seem to be the norm for ensuring adequate moisture in the absence of excessive irrigation. According to Georgia Native Plant Society members Kathryn Gable and Paula Reith, who manage the bogs at the Georgia Perimeter College (GPC) Native Plant Garden in Atlanta, bogs can be much drier than one might think. The GPC bogs are irrigated regularly, but only along with the garden's normal watering regimen, and receive no special irrigation treatment. The key factor, according to Gable – the garden's undisputed "bog queen" – is the combination of depth and method of construction; she cautions against over watering.

Gable prefers her in-ground bogs to be at least two feet deep. After excavation, she lines the hole with a layer of sand to prevent roots and other debris from puncturing the liner from below. The liner is installed above this initial layer and filled to a depth of about eight inches (one third the depth of the hole) with pure sand. In some of her bogs, Gable cuts four-inch horizontal slits every three feet or so along the sides of the liner, just above the first layer of sand. This allows the sand to retain moisture while ensuring efficient drainage of excess rain and irrigation. The remaining sand and peat are mixed and watered thoroughly in a wheelbarrow, then spread one load at the time in a 2 to 3 inch layer across the surface of the developing bog. Each layer is compacted tightly by repeated stomping.
The bottom line on bog building is experimentation. Build a bog, see how it works, and re-design to accommodate what you’ve learned. Most bogs begin to lose vitality after several years and plants can be easily removed and re-planted. Digging up your bog, rejuvenating the peat, and re-installing the plants will give you plenty of opportunity to try out new ideas and make your bog gardening experience an ongoing adventure.

Of course, powdery airplant’s insectivorous habit is not a new discovery. It was reported in the literature in the late 1970s and was extensively described by Dan Ward and Durland Fish in 1978 in Rare and Endangered Biota of Florida, Volume 5, Plants. Nevertheless, it is not a species that typically springs to mind with the mention of pitcher plants. McPherson’s decision to include it underscores the breadth of his book.

Other genera treated include Brocchinia, another group of tank bromeliads from South America’s Guiana Highlands, the Californian Darlingtonia (similar in many ways to our own Sarracenia), the relatively large and interesting genus Heliamphora, and, of course, Sarracenia.

Impatient readers might be tempted to hurry past the nearly 100 pages detailing the fifteen species of Heliamphora. This is a mostly South American genus that graces the summits of Argentinean and Brazilian tepuis, magnificent flat-topped mesas that rise hundreds of meters above the surrounding lowlands. However, skipping this section risks the loss of a delightful adventure. Few American pitcher plants have a more interesting or beautiful leaf and a more fascinating structural adaptation for ensuring that they stay upright when filled with rain water. One species – Heliamphora sarracenioides – is even named for the resemblance of its leaves to those of our own Sarracenia.

Heliamphora leaves are equipped with a small pore or slit about halfway up their length. In rainy weather these tiny pores serve to release excess rain water. As rising water in the leaf’s interior reaches the level of the pores, it drains out the side of the leaf, preventing the leaves from becoming too heavy and toppling over.

My particular interest was the Sarracenia chapter, due to the preponderance of Sarracenia species in the East Gulf Coastal Plain and the Florida panhandle where I botanize. McPherson treats all of our taxa, including the numerous varieties, subspecies, and horticultural selections. His treatment of the Sarracenia is one of the few, if not the only, comprehensive sources of information about the numerous forms noted by horticulturists and carnivorous plant aficionados, and it will likely find a place among my favorite references to the southeastern Sarracenia.

My only disappointment in this section was the omission of our own little Gulf purple pitcherplant under its more recent name, Sarracenia rosea. McPherson includes the taxon as well as a nice image of it, but under the name S. purpurea subsp. venosa var. burkii. Rob Naczi of Delaware State University raised the plant to species level in the pages of Sida in 1999. McPherson’s 2007 copyright date would seem to provide plenty of time to include at least a reference to Naczi’s work, even if he didn’t accept Naczi’s argument.

Nevertheless, McPherson’s book gets outstanding marks and is an excellent read: detailed and replete with useful information. No carnivorous plant enthusiast will want to be without it.