# Plants of Pond and Shore

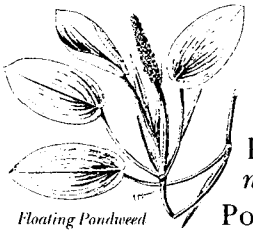
The lakes and ponds of Sewanee add to the diversity of the Domain by providing a habitat for water-loving plants. All are man-made, starting in 1953 with the Farm Pond which was built when the Soil Conservation Service demonstrated the feasibility of impoundment by earthen dams on the plateau. Under the leadership of Vice-Chancellor Edward McCrady and University Forester and Engineer Charles Cheston, lakes continued to be added until 1968 for various uses, including wildlife habitat and firefighting. Currently there are 12 lakes scattered throughout the Domain, not including Lakes O'Donnell, Jackson, and Dimmick (formerly Day Lake), which are managed for water supply.

BIODIVERSITY ON THE MOUNTAIN
SEWANEE HERBARIUM
DEPARTMENT OF BIOLOGY
THE UNIVERSITY OF THE SOUTH

August, 2000

Lakes and ponds are temporary phenomena, because filling, no matter how slow, is inevitable. The accumulation of organic matter and decrease in water depth define more or less concentric vegetation zones from the center to the edge of the lake. These zones are the **submersed**, the **floating-leaved rooted aquatic**, and, closest to the shore, the **emergent**. The term pond is used if the water is so shallow that rooted vegetation can grow over most of the bottom.

The carnivorous Bladderworts, *Utricularia* spp., are perhaps the most fascinating **submersed** aquatics. They are not rooted on the lake bottom at all. The finely divided leaves go limp when taken out of the water, but the small roundish bladders can still be seen. These bladders are a marvel, with a "trapdoor" triggered by sensitive hairs which detect the tiny animals on which they feed. Their occurence in Lake Cheston and other lakes is a good sign that protozoans, rotifers, and small crustaceans are abundant. Water-milfoils like Parrot-feather, *Myriophyllum aquaticum* (Vell.) Verdc., have whorls of feathery leaves on flexible underwater stems. A South American native and an aquarium escape, this species is quite invasive and can dominate the pond, as in Lakes Finney and Gregg. Another invasive escape in these same lakes is *Elodea canadensis* Michx., similar in form but with undivided leaves. Close relative of the Water-milfoil, the Mermaid-weed, *Proserpinaca palustris* L., can be seen along the dam at Lake Bratton.

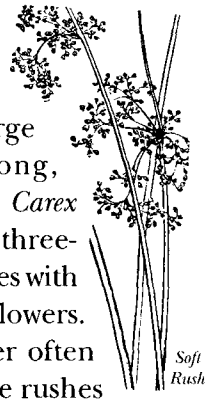

*Floating Pondweed*

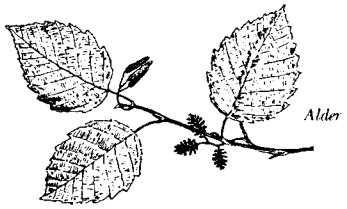
The dominant **submersed** aquatics in most North American lakes and ponds are pondweeds. *Potomageton nodosus* Poir., Longleaf Pondweed, can be seen clearly along the dam at Lake Finney, with its floating larger leaves and elongated submersed leaves, rooting in the bottom. In Lake Cheston, Snailseed Pondweed, *Potomageton diversifolius* Raf., has seeds that look like tiny, flat snails. The floating leaves are small and oval and the submersed leaves filamentous.

The leaves of the Broadleaf Water-plantain, *Alisma subcordatum* Raf., share this characteristic of heterophylly. Some are broad and floating in shallow water while other leaves are lax and ribbonlike. At the shoreline, the leaves are erect and more heart-shaped around an attractive flower stalk, many-branched in threes. This is usually in bloom around the Fourth of July at Lake Cheston. A sometime pest is another of the **floating-leaved rooted aquatics,** *Brasenia schreberi* J.F. Gmel., the Water Shield. The stalk is attached to the middle of the oval leaf, the underside of which is covered with a slippery jelly. This plant became a problem recently in Lake Bratton.


*Water Plantain*

**Emergents** have their roots and lower stems immersed in the water, while the upper stems and leaves stand above the water. Their variety and distribution vary with water depth and fluctuation of the water level. The Broad-leaved Cattail, *Typha latifolia* L., the most familiar, does better in deeper water, often in association with its relative the Bur-reed, *Sparganium americanum* Nutt., as at the metal bridge at Lake Cheston. Called "the supermarket of the swamps" by Euell Gibbons, some part of the cattail is edible in every season. Sedges and rushes are **emergents** that do better in shallow water and saturated soils. The stems of rushes are round and smooth and the flowers are three-parted. The Soft Rush, *Juncus effusus* L., is very common and easy to identify, with the flower clusters seeming to emerge from the side of the long, pointed "leaf". Sedges like *Carex crinita* Lam. usually have three-sided stems and flower spikes with separate male and female flowers. These two species together often dominate shorelines. Spike rushes are members of the sedge family that cannot complete their life cycle unless they are alternately covered by water and exposed to air. They are also distinctive as a group, with the "cone" or spikelet of flowers at the tip of slender, green, leafless stems growing in clumps. *Eleocharis obtusa* (Willd.) J.A. Schultes has been observed at Lake Cheston and *Eleocharis quadrangulata* (Michx.) Roemer & J.A. Schultes (with a four-sided stem, the exception to the rule!) along the Lake Finney dam.




**Shore** plants, while not strictly aquatic, are nevertheless very much part of the pond community. The Smooth Alder, *Alnus serrulata* (Ait.) Willd., is a clonal shrub whose roots form mats, preventing erosion of the shoreline, and host nitrogen-fixing bacteria in root nodules. The Black Willow, *Salix nigra* L., is also important in erosion control and is the largest native willow. Among the non-woody, flowering plants, Boneset, *Eupatorium perfoliatum* L., is very common, a tall composite with the stem seeming to pass through the paired leaves. A tea from this plant was used in treating breakbone fever (dengue) and in the flu epidemics of the 1800s and early 1900s. Other members of this genus, the Joe-Pye-weeds, often occur with boneset and ironweed and are transitional between the cattails and the zone of loosestrife, goldenrods, and Queen Anne's lace. At the dam overflow at Lake Cheston are some other wet area species: Square-stemmed Monkey-flower, *Mimulus ringens* L., Cardinal-flower, *Lobelia canadensis* L., and Dwarf St. John's-wort, *Hypericum mutilum* L. Numerous other wildflowers, as well as mosses and ferns, make a stroll around a lake or pond always rewarding.

# More Plants of Pond and Shore

## Mosses

Haircap Moss
*Polytrichum* spp.

Peat Moss
*Sphagnum* spp.

## Ferns

Cinnamon Fern.
*Osmunda cinnamomea* L.

Netted Chain-fern
*Woodwardia areolata* (L.) T. Moore

New York Fern
*Thelypteris noveboracensis* (L.) Nieuwl.

Rattlesnake Fern
*Botrychium virginianum* (L.) Sw.

Royal Fern
*Osmunda regalis* L.

Southern Lady-fern
*Athyrium felix-femina* (L.) Roth

*New York Fern*

## Wildflowers

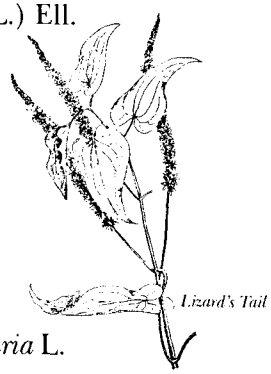
Arrow-leaved Tear-thumb
*Polygonum sagittatum* L.

Bedstraw
*Galium tinctorium* (L.) Scop.

False Loosestrife
*Ludwigia palustris* (L.) Ell.

Hedge-hyssops
*Gratiola* spp.

Lizard's-Tail
*Saururus cernuus* L.



*Lizard's Tail*

Meadow Beauties
*Rhexia* spp.

Moneywort
*Lysimachia nummularia* L.

Rough Buttonweed
*Diodia teres* Walt.

*Blue Flag*

Skullcaps
*Scutellaria* spp.

Southern Blue Flag
*Iris virginica* L.

Turtlehead
*Chelone lyonii* Pursh.

Whorled Yellow-Loosestrife
*Lysimachia quadrifolia* L.

Yellow-eyed Grass
*Xyris ambigua* Bey. es Kunth

# Ponds and Lakes "in town"

*L. Bratton*
dam on Carruthers Road

*L. Finney*
dam on New College Drive, near Courts Dormitory

*L. Gregg*
dam on New College Drive, near Trezevant Dormitory

*Running Knob Hollow L.*
between Running Knob Hollow and Roark's Cove Roads

*L. Torian*
on the golf course

# Ponds and Lakes "farther afield"

*Armfield Bluff (Old Bushy, Brushy) L.*
access from western portion of the Perimeter Trail

*Audubon L.*
dam on fire lane east of Five Points

*Cedar Hollow L.*
northwest of Farm Pond, at head of Cedar Hollow

*Cherry Point (Forestry Cabin) L.*
at Forestry Cabin, on the Perimeter Trail

*Chestnut Ridge L.*
northeast of Audubon Lake

*L. Cheston*
off the Breakfield Road

*Farm Pond*
near the stables

*A map showing the locations of these lakes is available at the office of the Sewanee Outing Program, in the Bishop's Common.*

# References


Eastman, John. 1995. *The Book of Swamp and Bog: Trees, Shrubs, and Wildflowers of the Eastern Freshwater Wetlands.* Stackpole Books.

Godfrey, Robert K. and Jean W. Wooten. 1981. *Aquatic and Wetland Plants of Southeastern United States.* The University of Georgia Press.

Hotchkiss, Neil. 1972. *Common Marsh, Underwater, and Floating-leaved Plants of the United States and Canada.* New York, Dover Publications, Inc.



The *Biodiversity on the Mountain* series is produced by the Biology Department of the University of the South. This guide was prepared by Yolande Gottfried of the Sewanee Herbarium.

The Sewanee Herbarium web site address is:
http://www.sewanee.edu/biology/herbarium


Taxonomy follows Kartesz, John T. 1999. Synthesis of the North America Flora (computer file). North Carolina Botanical Garden, Chapel Hill, NC.



**SEWANEE**
*The University of the South*