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Southern Region

CARNIVOROUS PLANTS

OF CONECUH NATIONAL FOREST

U. S. Department of Agriculture
Forest Service - Southern Region

Conecuh National Forest
Rt. 5, Box 157
Andalusia, AL 36420

Text and photographs by:
George W. Folkerts
Zoology and Wildlife Science
Auburn University

Debbie Rymal Folkerts
Botany & Microbiology
and
Zoology & Wildlife Science
Auburn University

and
Auburn University Agricultural Experiment Station

Cover photo: White-topped pitcher plant

USE OF THIS BOOKLET

This publication is designed to help visitors and other interested individuals obtain more information about the carnivorous plants that occur in Conecuh National Forest. It has been prepared mainly to help identify carnivorous plants that might be seen in the habitats in this region of the Gulf Coastal Plain.

The booklet is designed for use by the public and should not be considered to be a scientific document. Terminology and names of the plants are used to help identify the plants. More detailed information on the plants may be found in the sources listed at the end of the booklet.

Carnivorous plants, like all native species, are declining in numbers. Although none of the species covered in this booklet are currently protected by Federal law, most have been listed as declining species in documents generated by the states of Alabama and Florida, and all deserve our careful custodianship. A number only occur at a few locations in the forest.

If you come across plants that you cannot identify with this guide, note their location. Make notes on their characteristics and take pictures if possible. DO NOT PICK FLOWERS, DIG UP PLANTS OR REMOVE PARTS OF THE PLANTS. Leave them for other visitors to enjoy. For help in identification, check with forest employees, or write, including all of the information you can, to:

Forest Botanist
National Forests in Alabama
2946 Chestnut Street
Montgomery, AL 36107

ABOUT CARNIVOROUS PLANTS

Throughout the world, there are nearly 500 species of flowering plants that are carnivorous. These plants have the ability to capture animal prey, digest them, and absorb some of the materials for their own use. In general, carnivorous plants grow in moist habitats that are low in nutrients. They use their unique ability to capture animal prey to obtain nutrients not available in sufficient amounts in the soil. In Conecuh National Forest carnivorous plants grow in a variety of habitats, including bogs, ponds, wet savannas, and other sites where the soil is soggy or moist and usually acid. Many other plants also live in these sites and have solved the problem of low nutrients in other ways. Although not discussed further in this booklet, a number of fungi that live in soil and water are also carnivorous, trapping and digesting small roundworms. In addition, carnivorous traits may occur in some immature plants. The sticky seeds of shepherd's purse, a common weed of the mustard family, seem to entrap small insects whose decaying bodies may eventually furnish nutrients to the tiny, germinating plant.

Carnivorous plants are more conspicuous and diverse in pitcher plant bogs of the Southeast than anywhere else in the world. More than 20 species

of carnivorous plants occur in these habitats. Carnivorous plants of several types also inhabit ponds and swamps. Conecuh National Forest is known to harbor 23 species: 4 sundews, 4 butterworts, 10 bladderworts, and 5 pitcher plants. The only one of the general types of carnivorous plant not present in the forest is the Venus flytrap, called the most wonderful plant in the world because the two halves of its leaves can quickly snap closed on any insect that may enter. Its native range is on the Coastal Plain of the Carolinas.

The carnivorous plant species in Conecuh National Forest fall into four rather distinct groups with different types of trapping structures and adaptations. We will attempt to briefly introduce each general type and mention some of the adaptations for trapping prey.

Sundews

The sundews are some of the most familiar carnivorous plants because there are many species and they occur in most parts of the world. Four species occur in Conecuh National Forest. Mucus-covered hairs that protrude from the leaves of sundews function to trap and digest insects. The shining globs of mucus at the ends of the leaf hairs glisten like droplets of water when the sun strikes the plant, hence the name sundew. Most species develop reddish hues in the leaves when growing in open sunlight. Groups of the plants may be relatively conspicuous, even though individual plants are not large.

How or if sundews actually attract prey is not known. The leaves do not produce sugary nectar. However, the shining sticky droplets may be attractive because they resemble nectar. Some of the insects captured have merely bumped into the sundew leaves as they flew or crawled about. After the prey becomes entangled in the mucus, the hairs of many species bend toward the surface of the leaf. In some, groups of hairs may fold over the trapped prey, enclosing it in what could be thought of as a temporary plant stomach. The hairs produce digestive juices and absorb nutrients from the prey. Leaves of sundews live for only a few weeks and are replaced by new ones as growth occurs.

Most of the animals that become prey of sundews are small. Ants and small flies are often captured in great numbers. Anything that cannot pull away from the sticky entangling material may occasionally be ensnared. The larger sundew species in our area occasionally trap dragonflies and butterflies, almost always because their wings have come in contact with several leaves.

Butterworts

Butterworts are less well known to the public than are the sundews and Venus flytrap. Four species inhabit Conecuh National Forest. The somewhat succulent leaves of butterworts are flattened, often inrolled at the edges, and are positioned in a horizontal, circular cluster. The upper leaf surface is covered with numerous tiny sticky hairs. The hairs are much smaller than

those on sundew leaves and are not easily visible to the naked eye. However, they give the surface of the leaf a shiny appearance and a greasy feel. Tiny flies or other small insects are trapped as they cross or light on the leaf. Digestive glands on the leaf surface break down the prey and some nutrients are absorbed. The name butterwort is of uncertain origin. Perhaps it refers to the buttery feel of the leaf surface, or maybe it is derived from the European custom of placing leaves or juices of this plant in milk to curdle it.

Bladderworts

The bladderworts are relatives of the butterworts but have a different form and trapping strategy. In bladderworts, the plant body has been modified to the extent that even botanists have not come to agreement as to what parts should be called leaves or stems. Most bladderworts are aquatic and produce masses of branched, green, stem-like structures in the water. In Conecuh National Forest, three species inhabit wet soil and seven are aquatic. The bladders, which entrap prey, are borne on the stem-like portions by the thousands or hundreds of thousands. Bladders are small, usually less than 1/4 inch across; in some species they are so tiny that they are difficult to see. Bladders are sack-like structures with a hinged door at one end. Outside the door are sensitive hairs. Contact with the hairs by a small animal, such as a mosquito larva, causes the bladder to rapidly expand, sucking in everything in the vicinity as the door snaps open. The bladder expands so rapidly, at least in 1/500th of a second, that the movement cannot be seen with the naked eye. It seems odd that one of the fastest movements among all living things is the movement of a plant. If a tiny animal is trapped, digestive substances break down its body and the plant absorbs the nutrients through the wall of the bladder.

Pitcher plants

The pitcher plants are the most obvious and well-known of the types of carnivorous plants in the South. Of eight species of pitcher plants that inhabit the southeastern United States, five occur in Conecuh National Forest.

The stems of pitcher plants, called rhizomes, lie beneath the soil. Leaves and flowers are produced above the ground. The most obvious leaves are the tubular pitchers, the parts that trap insects. Some have less conspicuous leaves, the phyllodia, which resemble more typical plant leaves. Insects are lured into the pitchers by nectar and by the flower-like appearance. Slippery surfaces, long hairs, and the narrowness of the tube make escape difficult. The opening to the pitcher tube is partly covered by a hood-like projection that may prevent rain from diluting the digestive substances and washing out prey. Bacterial action also functions to break down prey. The bright-colored pitchers of some species are often mistaken for flowers. However, the flowers of carnivorous plants are not involved in the capture of prey although many are beautiful and interesting.

YELLOW PITCHER PLANT

Scientific name: *Sarracenia flava.*

Identifying features: The largest of the pitcher plants. Pitchers are erect, up to 34 inches tall, to 3 inches wide at the mouth, yellowish-green, usually with a reddish spot in the throat. Flowers are yellow, grow to nearly 2 inches across, stalks 4 to 20 inches long.

Flowering period: Late March to mid-April.

Distribution: From southeastern Virginia, south to north-central Florida, west to southwestern Alabama.

Habitat: Bogs, wet savannas, edges of boggy creeks.

Distribution in forest: Throughout.

Abundance in forest: Common.

Other Information: The leaves of this species usually die back completely in the winter. All other species in the area maintain some green tissue in the old pitchers until early spring unless the winter has been extremely cold or the sites are dry.

WHITE-TOPPED PITCHER PLANT

Scientific name: *Sarracenia leucophylla.*

Identifying features: Pitchers are erect, grow to 30 inches tall, to 2 1/2 inches wide at mouth. Top of pitcher is white, interlaced with reddish or greenish veins, lower portion is green. Flowers are red, grow to 1 1/2 inches across, flowering stalks 10 to 30 inches long.

Flowering period: Late March and April.

Distribution: Southwestern Georgia, through the Florida Panhandle and southern Alabama to southeastern Mississippi.

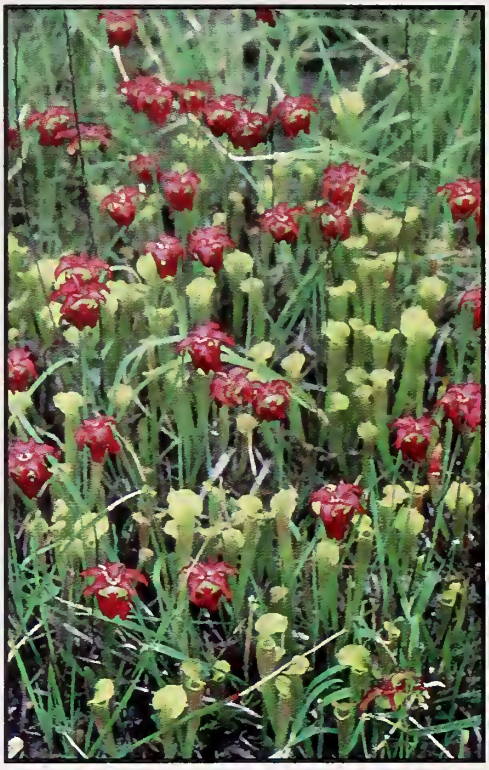
Habitat: Bogs and wet savannas.

Distribution in forest: Throughout.

Abundance in forest: Common.

Other information: This pitcher plant is more successful in trapping large masses of prey than any other species. When plagues of love bugs (a fly that breeds in roadside, decaying vegetation) occur, the pitchers fill to the brim, some containing more than 2,000 love bugs.

RED PITCHER PLANT



Scientific name: *Sarracenia rubra.*

Identifying features: Pitchers are erect, short, grow to 14 inches tall, less than 1 inch wide at mouth, green with reddish veins, often becoming reddish later in the season. Flowers are red, grow to 1 inch across, flowering stalks to 12 inches long.

Flowering period: Throughout April.

Distribution: From central coastal North Carolina south to southern Georgia and west to southeastern Mississippi.

Habitat: Bogs and wet savannas.

Distribution in forest: Only known from a few sites in the southern portion of the Forest.

Abundance in forest: Very rare.

Other information: Several subspecies of the red pitcher plant have been described by botanists. The subspecies in Conecuh National Forest has been called Wherry's red pitcher plant, but, because features can be interpreted differently, could also be called the Gulf red pitcher plant.

PARROT PITCHER PLANT

Scientific name: *Sarracenia psittacina.*

Identifying features: Pitchers usually recline on the ground; hood rolled over forming a bulbous cover over the mouth, leaving only a small hole; pitcher length to 10 inches, hood width to 1 1/2 inches, a large winglike blade runs the length of the upper surface of the pitcher. Flowers grow to 1 inch across, stalk to 10 inches long. The hood, which vaguely resembles the head of a parrot, gives this plant its name.

Flowering period: Mid-April to early May. This is the last pitcher plant to begin flowering in the forest.

Distribution: From coastal South Carolina, south through Georgia, west to eastern Louisiana.

Habitat: Bogs and wet savannas.

Distribution in forest: Throughout.

Abundance in forest: Common, although not easily seen from a distance because the pitchers lie on the ground.

Other information: The first pitchers formed in the spring usually project up from the soil at an angle, have very large blades, and capture few or no insects. Most of the prey items caught by the typical reclining pitchers are crawling animals such as beetles and millipedes.

PURPLE PITCHER PLANT

Scientific name: *Sarracenia purpurea.*

Identifying features: Pitchers are short, squat, jug-shaped, recline partly on the soil, grow to 15 inches long and 2 inches wide at the mouth. The hood is upright, not covering the opening, large conspicuous hairs point downward on inside of hood. Pitchers are green when newly formed, but become red-veined, and sometimes entirely red, when exposed to sun. Newer pitchers nearly always contain a pool of water in which the prey are trapped. Flowers are red, magenta, or dark pink, grow to 1 1/2 inches across; stalks to 12 inches.

Flowering period: From about March 20 to mid-April. They are the earliest of the pitcher plants to flower.

Distribution: The most widespread pitcher plant. Across southern Canada and the northeastern United States, south along the Atlantic Coast, to northern Florida, west to eastern Louisiana. Also at scattered sites in the Appalachians.

Habitat: Bogs, wet savannas, boggy troughs, and springy areas.

Distribution in forest: Scattered throughout.

Abundance in forest: Occasional, although perhaps commoner than they appear because plants may be hard to see among taller herbs and shrubs.

Other information: This is the species that gave the name "pitcher plant" to the group. Its leaves resemble old-fashioned cream pitchers. Ponce de Leon is said to have sipped liquid from this plant to determine if it might be the fabled Fountain of Youth. It is not recorded how long it took him to pick the insect parts out of his teeth!

HYBRID PITCHER PLANTS

A.

B.

C.

D.

A. Hybrid between yellow pitcher plant and white-topped pitcher plant.

B. Hybrid between yellow pitcher plant and purple pitcher plant.

C. Hybrid between white-topped pitcher plant and red pitcher plant.

D. Hybrid between parrot pitcher plant and red pitcher plant.

All of the species of pitcher plants in Conecuh National Forest are known to cross with other species, forming hybrids. At times many hybrids appear at a site, especially if the soil has been disturbed. Hybrids are formed as bees carrying pollen from the flower of one species visit the flower of another. Hybrid plants often have features that make them less successful at growing, capturing prey, and reproducing than pure members of the species, so hybrids may not persist. Some hybrids are easily identified, but the parentage of others may be difficult to determine, especially if hybrids themselves cross with other hybrids. The hybrids pictured above are representatives known to occur in Conecuh National Forest. Nearly all of the pitcher plant hybrid combinations that are geographically possible may be found in the central Gulf area.

PINK SUNDEW

Scientific name: *Drosera capillaris.*

Identifying features: Rosettes of mature plants up to 3 inches across, but much smaller specimens often flowering. No conspicuous stem. Leaves pinkish to red unless heavily shaded, shaped like tapered spoons, expanded at the tip. Flowers pink, stalks hairless, to 8 inches long.

Flowering period: Any time from April to October, but mostly in spring.

Distribution: Coastal Virginia to southern Florida west to Texas, mainly on the Lower Coastal Plain. Many scattered populations farther inland.

Habitat: Bogs, wet savannas, wet ditches, seepage slopes, and low, open sandy areas near streams.

Distribution in forest: Throughout.

Abundance in forest: Very abundant. The most abundant species of carnivorous plant in the South.

Other information: Populations of this plant may be very dense, sometimes up to hundreds per square yard.

DWARF SUNDEW

Scientific name: *Drosera brevifolia.*

Identifying features: Rosette no more than 1 1/2 inch across, usually smaller. No conspicuous stem. Leaves pinkish to red unless heavily shaded, gradually tapering to a wider tip like a broadened spatula, but not spoon-shaped. Flowers pink to white, stalks to 3 inches long, with glandular hairs.

Flowering period: Any time from April to October, but mostly in spring.

Distribution: Coastal Virginia to southern Florida and west to Texas, with many sites inland as far as Arkansas and Tennessee.

Habitat: Moist pine flatwoods, roadsides, drier portions of bogs and wet savannas. Always in drier sites than the pink sundew and seldom as abundant.

Distribution in forest: Throughout.

Abundance in forest: Common, although not often noticed.

Other information: This species and the pink sundew are often confused. The smaller size, glandular hairs on the flower stalks and less conspicuous spooning at the ends of the leaves allow the dwarf sundew to be easily identified.

WATER SUNDEW

Scientific name: *Drosera intermedia.*

Identifying features: Rosettes grow to 4 inches across; leaves are borne on a conspicuous stem up to 6 inches tall. Leaves are red to dark purple unless shaded, slanting upward from the stem, shaped like long, thin spoons with the stalks several times as long as the expanded portion. Flowers are white to pink; hairless stalks grow to 4 inches long.

Flowering period: May to June, scattered flowering at other times.

Distribution: Northeastern United States and southeastern Canada, south to Florida and west to Texas. Also occurs in the Old World.

Habitat: Edges of ponds and slow-moving creeks, wettest portions of bogs, periodically flooded ditches, soggy sphagnum mats. This species is almost always found where water stands some of the time, or where the substrate is saturated.

Distribution in forest: Throughout.

Abundance in forest: Common.

Other information: When prey is captured, the leaves of this species slowly curl over at the tip, enclosing the prey in a digestive cavity.

GREEN DEWTHREADS

Scientific name: *Drosera tracyi.*

Identifying features: Leaves are upright or nearly so, narrow, appearing cylindrical, grow up to 15 inches long, forming a glistening, conspicuous clump. No conspicuous stem. Leaves are green, sometimes with reddish tinges on the glandular tentacles. Flowers are pink to rose purple, grow to nearly 1 inch across, stalks to 15 inches long.

Flowering period: Mid-April to mid-May.

Distribution: Southern Georgia, west through the Florida Panhandle and southern Alabama to eastern Louisiana.

Habitat: Bogs and wet savannas, often common in ditches and along roadsides.

Distribution in forest: Throughout.

Abundance in forest: Common.

Other information: The most conspicuous of the sundews. Stands of the plants are easily seen as one drives by. The leaves capture large numbers of small insects. One leaf studied had captured more than 1,500 tiny flies. A closely related species, not known from the forest, has reddish glandular hairs causing the leaves to appear red. Some specimens of green dewthreads may show reddish tinges.

YELLOW BUTTERWORT

Scientific name: *Pinguicula lutea.*

Identifying features: Rosettes grow to 4 inches across, yellowish green. Leaves are inrolled at edges, especially nearer the tip, making the tip appear pointed. Flowers are yellow, stalks grow to 10 inches long.

Flowering period: Late March through April.

Distribution: From coastal North Carolina south to southern peninsular Florida and west to eastern Louisiana.

Habitat: Drier portions of bogs, wet savannas, moist open slopes, roadsides.

Distribution in forest: Throughout

Abundance in forest: Occasional.

Other information: A white-flowered form of this plant is known, but has not been found in Conecuh National Forest.

PYGMY BUTTERWORT

Scientific name: *Pinguicula pumila.*

Identifying features: Rosette is very small, usually less than 2 inches across. Leaves are inrolled at edges giving them a v-shape. Flowers are white to violet, sometimes yellow, on stalks usually less than 4 inches long.

Flowering period: Mid-March through April.

Distribution: Coastal North Carolina to southern Florida, west to eastern Texas.

Habitat: Bogs, wet savannas, wet ditches, moist roadsides.

Distribution in forest: Found only once, in southern part.

Abundance in forest: Extremely rare, but perhaps overlooked because of its small size.

Other information: This butterwort is so tiny that, when in flower, it cannot be confused with other species. Small specimens of other species do not produce flowers.

RED-LEAVED BUTTERWORT

Scientific name: *Pinguicula planifolia.*

Identifying features: Rosettes grow to 5 inches across. Leaves are flat, usually not inrolled when fully expanded, almost always reddish or purplish or at least tinged with these hues. Flowers are violet-white to magenta, stalks grow to 9 inches long.

Flowering period: Mid-March to mid-April.

Distribution: Throughout the Florida Panhandle and extreme southern Alabama, west to southeastern Mississippi.

Habitat: Very wet portions of bogs, wet ditches, low flooded swales, and soggy areas at the edges of swamps. Often found in habitats that flood for part of the year.

Distribution in forest: Scattered throughout.

Abundance in forest: Occasional.

Other information: The reddish leaves will almost always allow this species to be easily identified.

STREAMSIDE BUTTERWORT

Scientific name: *Pinguicula primuliflora.*

Identifying features: Rosettes grow to 5 inches across. Leaves are flat when mature, oblong, pale green. Flowers are light violet, whitish at the center, with a yellow tube, stalks grow to 8 inches long.

Flowering period: March to May, scattered flowering throughout the summer.

Distribution: Central Florida Panhandle and southern Alabama west to southern Mississippi.

Habitat: Always associated with small streams, rills, or areas where some flow occasionally occurs. Very abundant at the edges of boggy streams although often difficult to see.

Distribution in forest: Throughout.

Abundance in forest: Common.

Other information: The streamside butterwort produces new plants by budding at the tips of the leaves. Thus, a large rosette may have several smaller ones around it.

DWARF BLADDERWORT

Scientific name: *Utricularia subulata.*

Identifying features: Grows in moist soil. Plant body is usually entirely beneath the surface, only evident from the flowering stalk. Subterranean bladders are few, tiny, inconspicuous. Flowers are yellow, less than 1/3 inch wide; stalks grow to 4 inches tall.

Flowering period: April through summer.

Distribution: Northeastern United States and adjacent Canada, south to southern Florida, west to Texas.

Habitat: Bogs, wet savannas, wet ditches, drying beaver ponds, muddy ruts, wet flatwoods.

Distribution in forest: Throughout.

Abundance in forest: Abundant.

Other information: By far the smallest of the bladderworts known from the Conecuh National Forest. It appears to be little more than a flower on a stalk. It is the most common terrestrial species in the area.

RUSH BLADDERWORT

Scientific name: *Utricularia juncea.*

Identifying features: Grows in moist soil. Plant body consists of green thread-like masses, the tips of which may protrude above the soil, forming a green mat. Bladders grow beneath the soil, are tiny, inconspicuous. Flowers are yellow; the hornlike spur is about as long as the height of the upper portion of the flower; stalks grow to 15 inches long, sometimes longer, tinged with red. Many flowers produced late in the season do not open fully.

Flowering period: Late April through summer.

Distribution: Northeastern United States south to southern Florida, west to Texas and Arkansas.

Habitat: Bogs, wet savannas, sandy swales, wet sandy ditches, sandy pond edges, wet flatwoods.

Distribution in forest: Throughout.

Abundance in forest: Common. More often encountered than the very similar horned bladderwort.

Other information: This species and the horned bladderwort are very similar. The reddish flower stalk of this species differentiates it from the green-stalked horned bladderwort.

HORNED BLADDERWORT

Scientific name: *Utricularia cornuta.*

Identifying features: Grows in moist soil. Plant body consists of green threadlike masses, the tips of which may protrude above the soil, giving the surface a green appearance. Bladders grow beneath the surface, are tiny, inconspicuous. Flowers are yellow, the hornlike spur longer than the height of the upper portion of the flower. Stalks grow to 15 inches long, sometimes longer, and are green.

Flowering period: Late April through summer.

Distribution: Northeastern United States and adjacent Canada south to southern Florida, west to Texas.

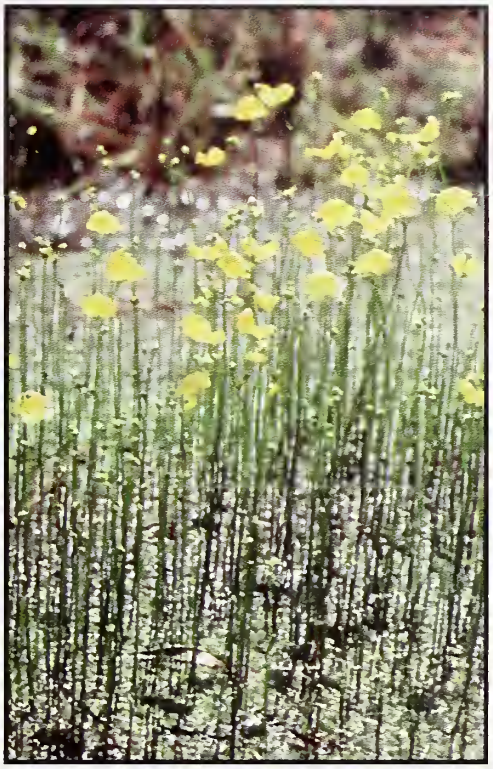
Habitat: Bogs, wet savannas, sandy swales, wet sandy ditches, sandy pond edges, wet flatwoods.

Distribution in forest: Throughout.

Abundance in forest: Occasional. Less common than the very similar rush bladderwort.

Other information: This species and the rush bladderwort are very similar. The green flower stalk of this species differentiates it from the reddish-stalked rush bladderwort.

MUD BLADDERWORT



Scientific name: *Utricularia gibba.*

Identifying features: The plant body is submerged in water or stranded on mud of drying ponds and swamps. The plant often forms dense, intertwined, matlike masses that may be confused with algae. Flowers are yellow, 2 to 3 per stalk, ranging in size from 1/4 to more than 1/3 inch across; stalk grows to 4 inches long.

Flowering period: Late April through summer.

Distribution: Eastern North America, west to Texas, and the Pacific Northwest.

Habitat: Swampy ponds, ditches. Often grows among dense mats of other aquatic plants.

Distribution in forest: Throughout.

Abundance in forest: Common.

Other information: This is the most common aquatic yellow-flowered bladderwort. It has smaller flowers than the other two aquatic yellow-flowered species of the forest. This species was previously thought to be two species. Types formerly called *Utricularia biflora* are now considered to be this species.

FOXTAIL BLADDERWORT

Scientific name: *Utricularia fibrosa.*

Identifying features: Plant body is submerged in water, usually in shallows, sometimes stranded by receding water. Terminal underwater branches resemble elongate puffy foxtails. Flowers are yellow, about 1/2 inch across, 1 to 4 per stalk. Stalks grow to 10 inches long.

Flowering period: May through summer.

Distribution: New England south to Florida, west to Texas and Oklahoma.

Habitat: Pond edges, pools in bogs, flatwoods depressions, shallow swampy areas.

Distribution in forest: Throughout, but scattered.

Abundance in forest: Occasional.

Other information: This species has much larger flowers and longer flowering stalks than the mud bladderwort. The foxtail-like vegetative parts are often visible in the water near the flowers.

POND BLADDERWORT

Scientific name: *Utricularia floridana.*

Identifying features: Plant body is submerged in water or muddy slurries, a bleached stem is embedded in the bottom producing cylindrical branches that extend upward in the water. Flowers are yellow, 1/2 to 2/3 inch across, 10 to 20 per flowering stalk. The stalk is curved or s-shaped.

Flowering period: May through September.

Distribution: Coastal Plain of South Carolina to central peninsular Florida, west to southwestern Alabama.

Habitat: Ponds, especially open sites with shallow water, beaver ponds, shallow sinkhole lakes.

Distribution in forest: Scattered where suitable undisturbed ponds remain.

Abundance in forest: Uncommon.

Other information: This species seems to crop up here and there and then disappear. It is easily identified by the large number of flowers and the curved flowering stalk.

SHORE BLADDERWORT

Scientific name: *Utricularia resupinata.*

Identifying features: Plant body is anchored on or in mud, sand, or sphagnum on the shores of fluctuating ponds or swamps. Bladders are scattered on a few thin branches, some of which may project above the surface. Flowers are purple, sometimes white, with an obvious blunt spur at the back, borne singly on stalks up to 4 inches long.

Flowering period: May through summer.

Distribution: Northern Midwest and northeastern United States, adjacent Canada south to southern Florida, and west to southestern Alabama.

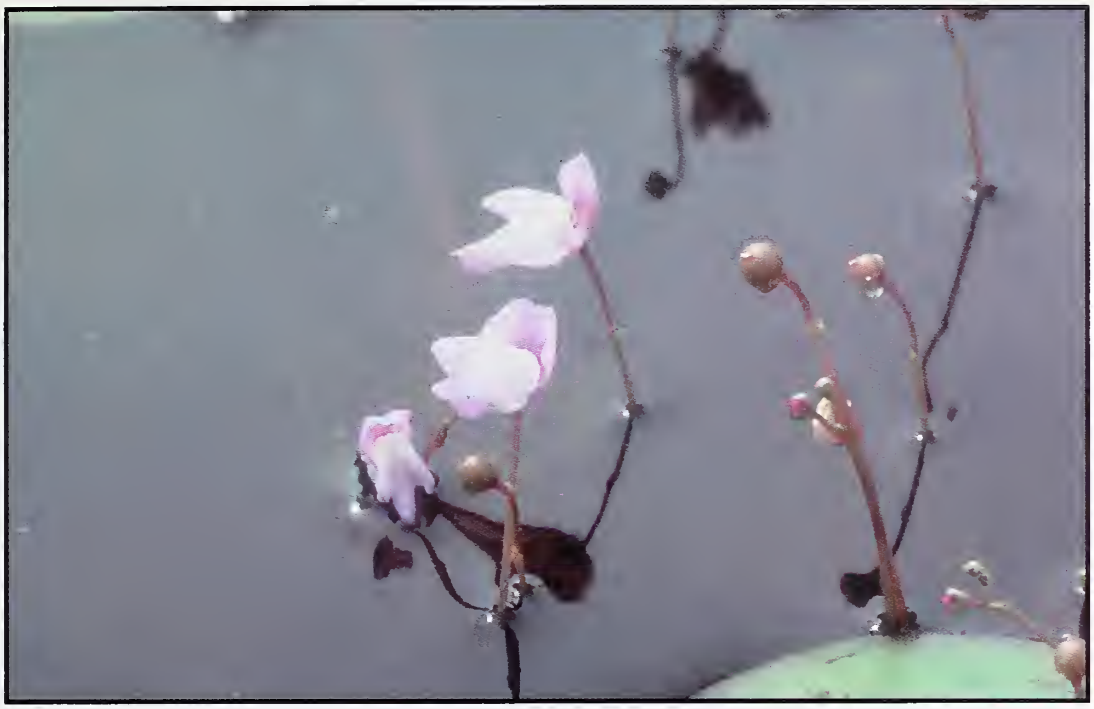
Habitat: Edges of sandy sinkhole lakes and ponds, ditch edges, shores of swampy ponds, sphagnum masses at edges of water.

Distribution in forest: Scattered throughout.

Abundance in forest: Occasional.

Other information: This bladderwort and the purple bladderwort are the only ones with purplish flowers. Flowers of this species have a conspicuous blunt spur at the back. It is easily distinguished from the purple bladderwort which has a very inconspicuous spur and has sacklike lower petals.

PURPLE BLADDERWORT



Scientific name: *Utricularia purpurea.*

Identifying features: Plant is submerged in water, although often stranded on mud in drying ponds. Stems support whorls of bladder-bearing branches. Flowers are dark pink or purple, sometimes white, with sacklike lower petals, and grow to nearly 1/2 inch across, often smaller; 2 to 5 flowers per stalk. Stalks grow to 4 inches long.

Flowering period: Mid-April through the warm season of the year. Flowering is most profuse in late spring.

Distribution: Southeastern Canada and northeastern United States south to southern Florida and west to eastern Texas. A few are found in scattered areas far inland.

Habitat: Swamps, ponds, ditches, sluggish creeks.

Distribution in forest: Throughout.

Abundance in forest: Common.

Other information: This bladderwort and the shore bladderwort are the only ones with purplish flowers. The spur on flowers of this species is much less conspicuous than the blunt spur of shore bladderwort flowers and this species has sacklike lower petals. Conditions seem to affect the size of this plant, some specimens being much smaller than typical plants.

SMALL WHEEL BLADDERWORT

Scientific name: *Utricularia radiata.*

Identifying features: Most of plant is submerged in water. Long underwater stems are about 1/4 inch wide and bear alternating masses of bladder-covered branches. Bladders are about 1/10 inch long. Flower stalks are supported by a floating wheel up to 4 inches across with 4 to 7 (often 6) spongy, inflated spokes; spokes narrow near the flower stalk, and narrow to a point and are slightly brushy at the tips. Flowers are yellow, about 1/2 inch across, usually 3 to 4 per flower stalk.

Flowering period: March to early May.

Distribution: Southeastern Canada to southern Florida, west to Texas and at scattered sites farther inland.

Habitat: Sinkhole ponds, cypress ponds, roadside ditches, beaver ponds, borrow pits, oxbow lakes.

Distribution in forest: Throughout.

Abundance in forest: Occasional.

Other information: This plant and the large wheel bladderwort are sometimes confused. The easiest way to tell them apart is to count flowers per stalk, 3 or 4 in this plant and almost always about 10 in the large wheel bladderwort.

LARGE WHEEL BLADDERWORT

Scientific name: *Utricularia inflata.*

Identifying features: Most of plant is submerged in water. Long underwater stems are about 1/4 inch wide and bear alternating masses of bladder-covered branches. Bladders are about 1/8 inch long. Flower stalks are supported by a floating wheel up to 10 inches across with 5 to 10 (often 8) spongy, inflated spokes; spokes not obviously narrowed near the flower stalk, and appear expanded and strongly brushy at the tips. Flowers are yellow, about 3/4 inch across, usually about 10 per lower stalk.

Flowering period: March to early May.

Distribution: New Jersey to southern Florida west to Texas.

Habitat: Sinkhole ponds, cypress ponds, roadside ditches, beaver ponds, borrow pits, oxbow lakes.

Distribution in forest: Only known from one site, but may occur throughout.

Abundance in forest: Extremely rare.

Other information: This plant and the small wheel bladderwort are sometimes confused. The easiest way to tell them apart is to count flowers per stalk, about 10 in this plant and almost always only 3 or 4 in the small wheel bladderwort.

CONSERVATION OF CARNIVOROUS PLANTS

Changes in the earth's natural habitats have decimated populations of carnivorous plants in many parts of the world. Overcollecting for the commercial and hobbyist trade has eliminated some types from places where they were once abundant. Drainage, grazing, vegetation clearing, and other changes in land use have also taken their toll.

Some efforts are being made to grow carnivorous plants in greenhouses and botanical gardens so they can be re-established in areas where they once occurred. Seeds of many types are now being stored to assure that the plants do not disappear. In the South, many sites that supported carnivorous plant have been lost because of the absence of the natural fire cycle. Fire benefits most plants and animals native to these habitats. Under primeval conditions, many areas in the South burned frequently. In pitcher plant bogs, most of the plants have their renewing parts beneath the soil so that resprouting easily occurs after a fire passes through. Without fire, plants from other habitats invade the open bogs, altering the habitat and causing most of the carnivorous plants to disappear.

Because roads, railroads, ditches, and other human alterations prevent the spread of natural fires started by lightning, and because many fires are extinguished before they can spread, it is necessary to deliberately burn areas in order to maintain them in their natural state. If you see a natural area that has been burned or if you see Forest Service personnel conducting a managed burn, you will know why.

Carnivorous plants are some of the most unique components of the natural habitats in the South. With careful treatment of natural areas, we can preserve these plants for all to see and enjoy as functional parts of natural systems.

SOURCES OF ADDITIONAL INFORMATION

The publications below provide information on carnivorous plants beyond that contained in this booklet. Two are highly technical and require some familiarity with scientific terminology.

Schnell, Donald E. 1976. Carnivorous plants of the United States and Canada. Winston-Salem, NC: John F. Blair, Publisher. 125 p. (Although somewhat out of date, this is still a very helpful reference).

Godfrey, Robert K., Wooten, Jean W. 1979 & 1981. Aquatic and wetland plants of southeastern United States. Athens, GA: University of Georgia Press. 933 p. (This is a valuable, although somewhat technical, reference on all of the region's carnivorous plants and the plant species that share their habitats).

Slack, Adrian. 1980. Carnivorous plants. Cambridge, MA: The MIT Press. 240 p. (A good general reference on carnivorous plants throughout the world.)

Juniper, B. E., Robins, R. J., Joel, D. M. 1989. The carnivorous plants. San Diego, CA: San Diego Division: Academic Press. 353 p. (A technical reference on carnivorous plants.)

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