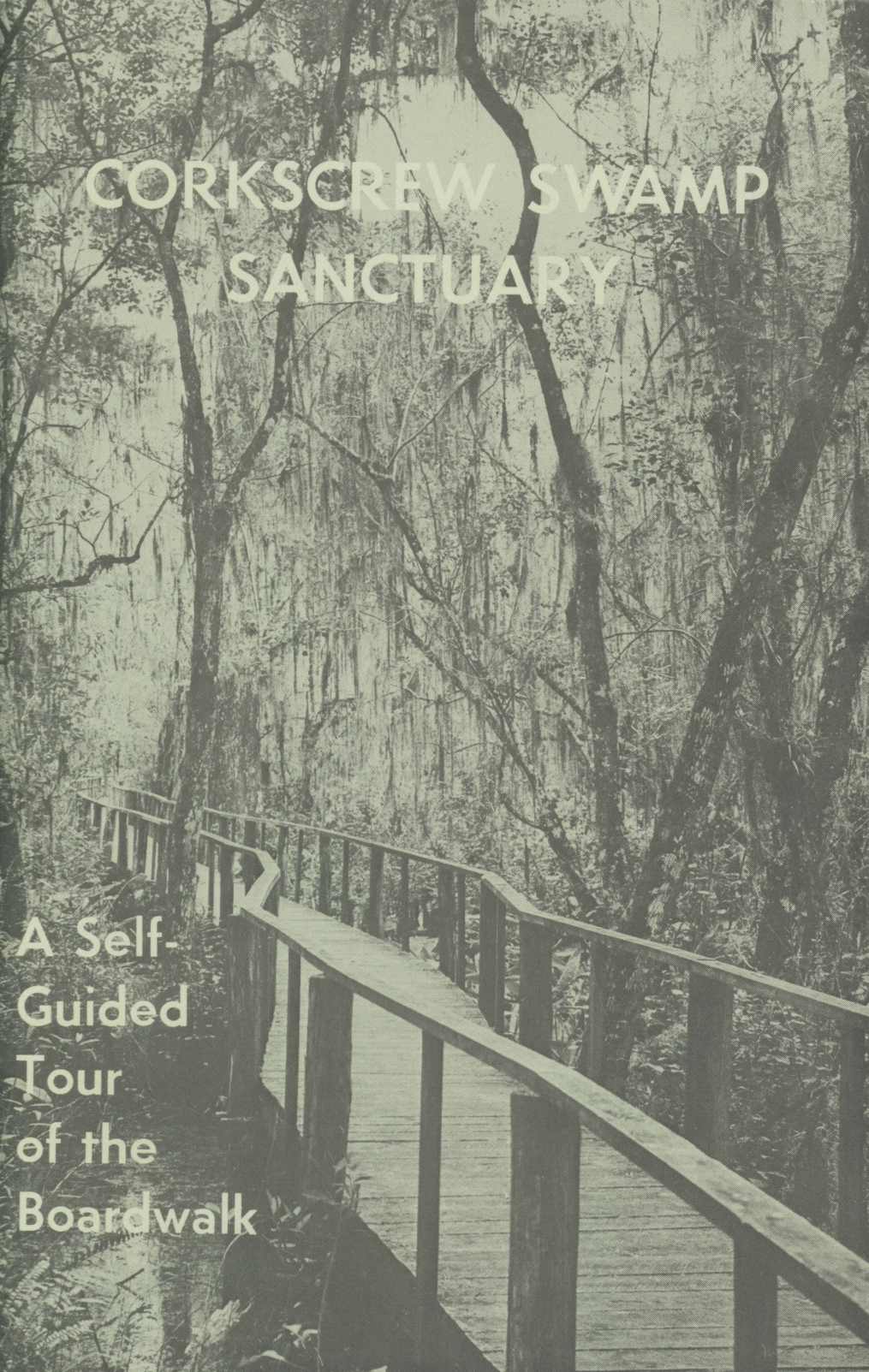
1980

Booklet, Corkscrew Swamp Sanctuary: A Self-guided Tour of the Boardwalk, 1980

Alexander Sprunt

National Audubon Society



CORKSCREW SWAMP SANCTUARY

A Self-Guided Tour of the Boardwalk

The Audubon Sanctuary Program

Since its founding at the turn of the century a prime concern of the National Audubon Society has been to establish and maintain sanctuaries—areas to provide protection for strategic concentrations of birds and unique habitats for plants, mammals, and other wildlife. Protection must be provided for nesting, roosting and feeding birds which would otherwise be subjected to damaging disturbances. The extraordinary comeback of the American and Snowy Egrets, threatened by extinction only a few decades ago, has been due, in large part, to the protection of their heronries by the Society.

Our chain of wildlife santuaries now extends through fourteen states with areas ranging in size from small off-shore islands to one 26,000 acre block of coastal marshland. Some of the Audubon sanctuaries protect the most important nesting colonies of such rare species as the Roseate Spoonbill, the Reddish Egret, and the Wood Stork. Eventually, such protection and management may be assumed by federal and state governments. Today, however, the government wildlife agencies, themselves hampered by stringent budgets, are concerned primarily with the game species; thus, it has fallen to the Society to furnish much of the protection needed by non-game species of birds and many mammals. Although we now have over forty operating sanctuaries, more areas must be preserved and existing areas enlarged if we are to meet our responsibilities amid the pressures of these modern days. We must go forward in this vital work even though we fully realize that it means the shouldering of ever-increasing costs.

Please see page 31 for forms you may use if you wish to join the National Audubon Society and contribute to its Sanctuary Program.

CORKSCREW SWAMP SANCTUARY

At the northern tip of what was once the Big Cypress Swamp of Collier County in southwest Florida, lies a remnant wilderness area of 11,000 acres which contains this country's largest remaining stand of virgin bald cypress — the oldest trees in eastern North America. Many of the trees tower 130 feet into the sky and have a girth of 25 feet. Cores taken from some of these monarchs show them to be over 700 years old. They were thus over two centuries old when Columbus discovered this new world.

The race to protect this fine stand of trees, called a cypress strand, is one of the exciting conservation stories of the century. The National Audubon Society has long been aware of its importance, because it was concerned with protecting the great Wood Stork and Common Egret colony that nested in the big trees. As early as 1912 it employed a seasonal warden to guard these birds from molestation.

The big step was taken in 1954, however, when a Corkscrew Cypress Rookery Association was formed. Fourteen separate conservation organizations and many individuals joined the new association, of which Dr. O. Earle Frye, Jr., now Director of the Florida Division of Game and Fresh Water Fish, became secretary. Mr. John H. Baker, then president of the National Audubon Society, became chairman of the finance committee. The owners of the standing timber, the Lee Tidewater Cypress Company and Collier Enterprises, were sympathetic to the conservation effort and most cooperative in working out a program of acquisition, even contributing substantial acreages of lesser growth and cutover lands for buffer zones.

Thanks to the generous support of all those involved, $170,000 in contributions was soon available for the purchase of the first 2240 acres. The Lee Tidewater Cypress Company gave an additional 640 acres. Another 3200 acres was leased from The Collier Enterprise, now the Collier Company, at a nominal rental, and purchased over a period of twelve years.

The National Audubon Society accepted the responsibility for managing the area, called it Corkscrew Swamp Sanctuary, and built a boardwalk over a mile long so that visitors might stroll dry-shod into this magnificent area — which someone characterized as being one million years from Miami — and sit quietly to enjoy its wildlife and the many other facets of its beauty. Here the visitor may learn about

air plants, identify rare orchids, admire the hidden lettuce lakes, marvel at alligators and otters, and watch birds to heart's content.

Recently additional land had to be added to preserve the integrity of the swamp which was threatened by development of the surrounding areas. A generous donation by the Ford Foundation and hundreds of other gifts by individuals, groups and organizations, enabled the Society to raise over a million dollars. This was used in 1968 to purchase 4320 acres located both south and north of the original holdings. Water control structures have been completed and presently the future of the swamp seems somewhat brighter; however, further lands and protective measures are still needed.

This booklet provides a cross-section of the natural history resources that have been preserved for your enjoyment by the vision and generosity of many who came before you. You can help the National Audubon Society continue and expand its conservation work by becoming a member, and we cordially invite you to do so by making use of the membership application form that is inserted at the end of this booklet. If you are in a position to consider contributions to an endowment fund whose income will help manage, improve and enlarge the sanctuary, the National Audubon Society will gladly discuss details with you.

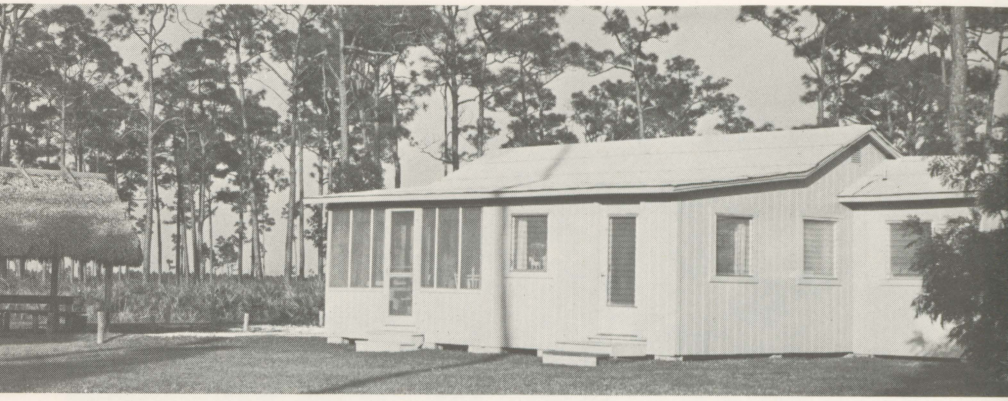
When acquired in 1954, Corkscrew Swamp Sanctuary was isolated and almost impossible of access. Today it is an oasis in a made-over landscape. Little is left of the wild swamps and wildlife that were characteristic of this region less than a generation ago. Corkscrew Swamp Sanctuary's value thus becomes more significant with every passing year. Help us preserve it.

Pineland

1. PINELAND—This is a typical low pine forest commonly known in Florida as "pine flatwoods." The two major species found in this area are the slash pine (**Pinus elliotti** var. **densa**) and the saw palmetto (**Serenoa repens**). In this particular stand are several cabbage palms (**Sabal palmetto**) indicating richer soil than is usually found in pineland. Most of the land east of the Sanctuary was once covered with similar stands of pine but lumbering and the cutting of pulpwood have removed the trees from most of it. These pines in the Sanctuary are virgin timber and have never been cut, except those ravaged by Hurricane "Donna" in 1960. Their relatively small size is typical of the pines of South Florida. Much of the land to the east has now been cleared and farmed.

A bird walk through the pineland affords the chance to see white-eyed towhees, red-cockaded woodpeckers, brown-headed nuthatches, and Bachman's sparrows.

Corkscrew Swamp Staffhouse



2. **BUILDINGS - STAFF**—The buildings that can be seen to the right are the homes and workshops of the persons who maintain and protect the Sanctuary. A large and varied tract of swamp, forest and marsh demands close attention, study and maintenance. This becomes especially important when the conditions in the surrounding territory are changing rapidly as they are at present. The men and women who work here spend long hours to see that the Sanctuary is preserved and that you enjoy and profit by your visit to it.

3. **WILDFLOWERS**—In an open stand of pine such as this, many grasses, sedges and flowering plants share the understory with the saw palmetto. One of the charms of South Florida is its wildflowers which bloom throughout the year. Small, a famous southeastern botanist, called Florida "the land of perpetual bloom." There are many species of wildflowers to be seen along the walk here. They vary with the season and range from tiny milkworts and blue-eyed grasses to large and showy lobelias and marsh pinks. Take time to enjoy them.

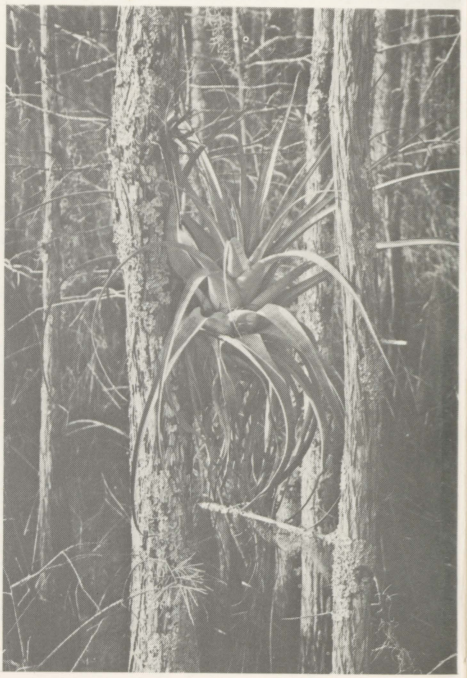
4. **FIRE**—If you look around, signs of fires, long past or quite recent, will be evident. In the southeastern United States pine forests are a product of fires. If they were not burned periodically by natural or artificial means hardwoods would replace the pines. Here in the Sanctuary, fire is used carefully, under controlled conditions to maintain the pines and keep a proper balance between the pines and the understory. If fire were kept out for a long time the undergrowth would gain considerable height, then if wildfire swept through even the fire resistant pines would be in danger. All of the plants that grow here are "fire proof," coming back rapidly after a burn.

5. OLD CAMP—The area around the swamp was essentially roadless until the highway from Immokalee to Naples was built during the late 1950's. Before that time, however, the Big Cypress country was traveled by Indians, hunters, trappers, and cattlemen, using canoes, oxcarts, horses and "glades buggies" of various sorts. At intervals along the swamps, on higher ground, were located well established "camps" which were used by all of these people. In the high pine and cabbage palms to the right of the walk was the "Bird Rookery Camp." It was used for a great many years by plume hunters, by Audubon Wardens starting in 1912, and by woodsmen of all kinds and was still used until the permanent dwellings were built on the property.

Wet Prairie

6. WET PRAIRIE—In most of the Big Cypress area there is a strip of seasonally wet land without trees, lying between the pine flatwoods and the cypress swamps. This is usually called a "wet prairie," which is probably too wet for pines but not wet enough for cypress. Its vegetation is primarily grasses and sedges, with many flowering plants growing among them. During the spring and summer these prairies are dotted with many showy flowers. This type of land is being extensively drained for the production of tomatoes and other winter vegetables over much of South Florida.

7. CYPRESS—The stand of cypress trees here is in the form commonly known as a "strand." This means that the trees occur in a long, narrow, and somewhat open stand. This particular one is about 3 miles wide and was once over 20 miles long. The smaller cypress before you, formerly considered a separate variety called Pond Cypress (var. **nutans**), is a site adaptation; the trees on the margins of strands are dwarfed due to higher layers of bedrock. The foliage differs from the larger trees in having overlapping scales which lessen water loss through transpiration. Further in the swamp, due to lower bedrock and increased water and organic muck, the trees grow larger, and the foliage becomes feathery. Cypress trees are one of the very few deciduous conifers, that is, they drop their leaves in winter. The miles of leafless cypresses that are seen each winter leaf out again in early spring.



Bromeliad, a type of epiphyte

8. EPIPHYTES—In the cypress swamp water levels fluctuate yearly between extremes of wet and dry, which presents special problems for plants. One way to adapt (if you're a plant, that is) is to adjust to an aerial way of life where conditions are less variable. These plants are "epiphytes," which simply means a plant growing upon another plant. They are not parasitic, but rather draw their food from other sources, simply utilizing the trees for support. Along this section are numerous forms of epiphytes or air plants.

9. YELLOW CATOPSIS (Catopsis berteroniana)—The light, yellowish green plants growing on the cypress trees here are one of the less common of the bromeliad species. The overlapping basal leaves of the bromeliads collect and store rainwater for long periods of winter drought. The water attracts insects, tree frogs, and other animals. The fecal matter deposited by such animals, in turn, forms an important source of nutrients necessary for the survival of the bromeliad.

Yellow Catopsis

10. MOSQUITO FISH—The tiny fish so numerous in the water of the swamp are the Gambusia or Mosquito Fish, **Gambusia affinis holbrooki** (the name is longer than the fish!). These fishes are the reason you'll likely not be bitten by mosquitoes as you visit the swamp. Gambusia are top feeders which feed primarily upon mosquitoe larvae, therefore limiting greatly in the swamp the number of mosquitoes to actually reach sexual maturity. They are a natural check on the mosquito population and an important base of the food chain both in the Big Cypress Swamp and in the Florida Everglades.

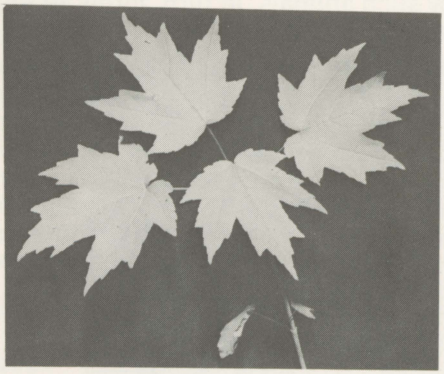
Stiff-Leaved Wild-Pine

11. STIFF-LEAVED WILD PINE (Tillandsia fasciculata) — This plant, growing here on the trunks of the cypresses in bunches, is the commonest of the pineapple air plants in Florida. It has a large bloom-stalk covered with red bracts. Small blue flowers appear from beneath the bracts. This is the plant often sold to unsuspecting tourists as a "Florida Orchid."

12. HAMMOCK—The term "hammock" as used in Florida denotes a clump of broad-leaved trees surrounded by a contrasting type of plant growth. Thus hammocks may be found in pineland, prairie, marshes or swamps, but all have the broad-leaved species in common. In South Florida they often are made up of tropical hardwoods but as you move northward the temperate species take over. The small hammock to the left of the walk here has red maple as its primary species. At most seasons a touch of red can be seen in the foliage. Hammocks are usually dense places. In the interior it is shaded, humid and very favorable for the growth of air plants and other shade-loving species, a natural greenhouse.

Swamp Fern

13. SWAMP FERN (Blechnum serrulatum)—Ferns are abundant and widespread throughout the swamp, and this one, the swamp fern, is perhaps the most abundant of all. It occurs throughout the Florida peninsula in wet places. It also grows in open sunny spots at times, but is much stunted and more rigid in such sites. Here, growing with abundant water and deep shade, it attains considerable size.



Red Maple Leaves

14. RED MAPLE (Acer rubrum)—Many persons are surprised to find this northern tree growing among the palms and cypresses of the Florida peninsula. Actually it is one of the commonest of our wet land trees and its red leaves provide one of the few splashes of autumn coloring.

Saw Grass

15. SAWGRASS (Mariscus jamacensis)—The tall gray-green clumps of narrow leaves to the right and left are sawgrass. Sawgrass is the dominant vegetation of the Everglades and occurs commonly in wet places throughout the state. The name is derived from three rows of fine saw teeth on each leaf blade, one on each edge and another on the back of the mid-rib. Walking through thick growths of sawgrass is very unpleasant due to these teeth which cause painful cuts. The largest and most concentrated stand of this sedge is in the Everglades where it originally covered some 3,000,000 acres.

Cardinal

16. SMALL BIRDS—This portion of the swamp is particularly attractive to small birds. Its brushy nature and location in a fairly open, sunny area contribute to this attractiveness. During any part of the year Carolina wrens, tufted titmice, blue-gray gnatcatchers, white-eyed vireos and cardinals can be seen and heard. During the spring and fall they are joined by many migrating birds, among them many species of warblers, and winter brings phoebes, catbirds and ruby-crowned kinglets.

Wax Myrtle

17. WAX MYRTLE (Myrica cerifera)—One of the more common shrubs of the swamp is the wax myrtle. Its leaves are variable in shape and aromatic when crushed. The surfaces of the leaves are dotted with small flecks of yellowish rosin which sometimes give them a brownish tinge. It is closely related to the bay berry of the north and bears similarly waxy fruits. In Florida it usually grows in wet places but is sometimes found in drier areas.

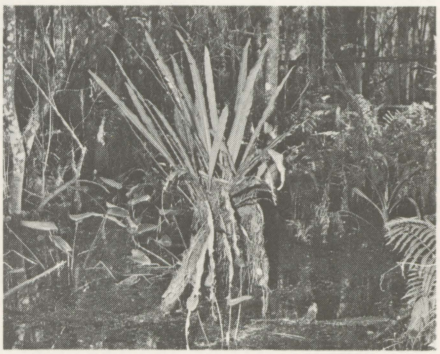
18. BALD CYPRESS (Taxodium distichum)—The cypress trees along the walk from this point on are far larger than those encountered previously. Here the lower bedrock and increased organic matter deposited over centuries in this ancient slough have provided ideal growing conditions. The name comes from the shedding of the leaves in winter leaving the trees "bald." Because of the tremendous commercial value of the wood almost all of the large stands in the country have been cut. This stand is the largest still left in its natural state.

Bald Cypress

Pileated Woodpecker

19. PILEATED WOODPECKER (Dryocopus pileatus)—On the large dead cypress here the workings of this woodpecker can be seen. Their loud drumming and far-carrying call are two of the characteristic sounds of the swamp. They may often be seen along this section of the walk. The pileated is the largest of our common woodpeckers, being almost the size of a crow. Its red crest and black and white pattern make a pleasing picture on a cypress trunk. Its food consists mainly of boring beetles and carpenter ants which it reaches by drilling into dead wood. Holes made by this bird have a characteristic oblong shape and should be watched for. This is the woodpecker often mistaken for the excessively rare ivory-bill.

Wild Boston Fern



Strap Fern

20. WILD BOSTON FERN (Nephrolepsis exaltata)—All around the base of the cypress are many fronds of the wild Boston fern. It is one of the common ferns of the swamp. While it grows well in deep shade, it reaches its greatest development in open sunny spots. It is found north to central Florida and generally through tropical America. One of its close relatives is often kept as a house plant.

21. STRAP FERN (Campyloneuron phyllitidis)—One of the unusual plants of the swamp is this fern. To those accustomed to the ferns of more northern places, the long sword-like leaves do not look like ferns at all. It is quite widespread through the swamp, growing in clumps on logs, hummocks, and even in trees. In the United States the fern is confined to South Florida but is found generally over most of the American Tropics.

Custard Apple Trees

22. CUSTARD APPLE (Annona glabra)—The small, twisted trees growing here are custard or pond apples. They have dark green waxy leaves and during the late summer and early fall produce large greenish-yellow fruits much in favor among the raccoon population. The fruits are filled with seeds but the flesh is edible although rather insipid. During the spring the flowers are present but are rather inconspicuous while on the tree. After the thick, fleshy petals fall into the water their creamy undersides, set off by a bright red base, make them much more easily noticed. The custard apple trees provide one of the best habitats for the tree-growing plants of the swamp as is evidenced by the heavy growth of air plants and orchids on them.

23. SWAMP WATER—The water in the swamp is not stagnant. During much of the year it flows slowly southward and ultimately finds its way to the Gulf. This flow can be seen in many places by watching floating leaves or duckweed. When the water level drops low enough to stop the flow, the water still remains pure. Roots of the plants growing in the water release oxygen which oxidizes organic matter in the water keeping it sweet and clear. Only in extreme drought periods, when the water is reduced to scattered pools, does it become foul and scummy. In normal years the water level fluctuates about 2 feet, with the highest level usually in late summer and the lowest in late spring. The year 1961-62 was an extreme drought period. On June 8th fire entered the Sanctuary and endangered the virgin bald cypress. Fortunately it was brought under control and heavy rains eliminated the hazard.

Pop Ash Leaves

Fire Flags

24. POP-ASH (Fraxinus caroliniana)—The pop-ash or swamp-ash is one of the more abundant small trees in the Sanctuary. Their compound leaves of five to seven leaflets and single, winged fruits make them unmistakable. These trees, along with custard apples, often make dense tangles in the swamps and in many of the marshes of South Florida. Unlike most kinds of ash, the wood of the pop-ash is light and weak.

25. FIRE FLAGS (Thalia geniculata)—The large broad leaves atop slender stalks give this plant its name of "flag." During most of the year the light green foliage and tall bloom stalks (up to 10 feet) are a prominent feature of Florida's wet lands. Even in winter when they are dry and yellow they add to the scene. They are related to the canna and the banana.

26. CLOSED PORTION OF WALK—A portion of the old boardwalk has been closed to traffic and a newer section added. The new section gives the visitor an opportunity to view the central marsh of the Sanctuary, ringed about with the stand of large cypresses.

27. DUCKWEED (Lemna minor)—The tiny green leaves floating all over the water belong to this species. It is one of the smallest of all flowering plants, each individual consisting of two or three minute leaves and a short root. They are to be found in ponds, swamps and marshes over much of the United States. Floating with the duckweed are the slightly larger, more rounded leaves of water meal, **Wolffia,** as well as **Azolla** or floating fern. To your left are the tall, slender stems of the aquatic grass **Zizania,** or Wild Rice.

Duckweed on Surface of Water

Swamp Lilly

28. SWAMP LILY (Crinum americanum) — The long, bright green leaves and large spidery white flowers make the swamp lily a conspicuous plant of Corkscrew. They bloom mostly during the spring and summer but occasionally a flower may be found at other seasons. The blooms are about 4 inches across, with six narrow white petals and a delicate fragrance.

Swamp Lily

29. STRANGLER FIG (Ficus aurea)—Around the large cypresses of the swamp, round, rope-like roots can often be seen coming down the trunks. Far above they expand and produce a crown with broad, shiny green leaves. This is an example of a very interesting plant, the strangler fig. The seed may lodge and start to grow as an air plant high on a tree, usually a cypress or cabbage palm, but soon sends down roots to the ground and starts drawing its food from the earth. In some cases the crown becomes so thick and dense that it shades out the host tree or sometimes the strangler puts roots all around the host and chokes it. Usually by the time the host dies the fig is large enough to stand alone. It is a close relative of the rubber and banyan trees and is often called by either one of these names. It may also grow from seeds in the ground. The fruits are small red berries growing along the twigs. These are used as food by wildlife.

30. DAHOON HOLLY (Ilex cannine)—The small tree here belongs to this species. It is common in many swamps of Southeastern U. S., but the lack of conspicuous spines on the leaf margin allows few to immediately recognize this tree as being a true holly. A redbay, **Persea borbonia,** with longer, darker leaves is growing to the right of the dahoon. This is the source of the "bay leaves" used as seasoning.

31. COASTAL-PLAIN WILLOW (Salix caroliniana)—The thicket of small trees here is made up of this willow, the only species that occurs in peninsular Florida. The dense willow tangles along the border of the sanctuary's northern marshes form in the spring the rookery sites for most of the herons, egrets, and anhingas seen from the boardwalk.

Central Marsh

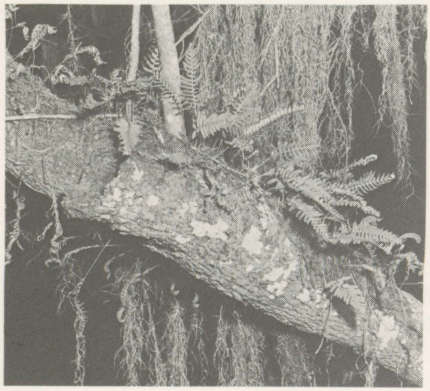
32. CENTRAL MARSH—The central marsh is the heart of Corkscrew Swamp. Cypress trees of the largest size surround it except for a narrow opening to the south, your left as you face the open expanse. The dominant vegetation of the marsh consists of arrowhead, pickerel weed and sawgrass. These are growing in a thick layer of muck over a base of sand. In years past fire burned the marsh at intervals. You can see the effects of it along the edges of the swamp where dead trees can be seen here and there. Note that these usually are found in a place where the cypress juts out into the marsh through the screen of willows. The thick beds of willow act as fire breaks, protecting the cypress trees elsewhere.

During the winter and spring wood storks and common egrets nest in the big trees at intervals around the marsh. They can be seen in the tops of the trees in their large stick nests, especially on the west side, across the marsh. During the breeding season, from 10 A.M. to about 4 P.M. many birds, especially storks, may be seen soaring or flying to and fro from their nests to their feeding grounds.

33. AGE OF CYPRESS TREES—Cypress trees are among our longest-lived trees, and some of these along the walk are well over 600 years old. Most of the older trees are hollow, some of them being hardly more than shells. Young, vigorous trees, 7 to 9 feet in circumference and 200 to 300 years old, are growing to replace the older ones as they die and are blown over. The age of these trees was estimated by taking harmless borings from the trunk, counting the growth rings, and estimating the age based on this sample.

Royal Palm

34. ROYAL PALM (Roystonea elata)—The young palm to the right was very likely seeded by birds about 1962, probably from the Fahkahatchee Strand southwest of us. These trees require wet feet when they first sprout. It is Florida's most stately palm, now much diminished because so many of its natural habitats have been drained in the past several years. If you make repeat visits with us, you can almost see it grow.

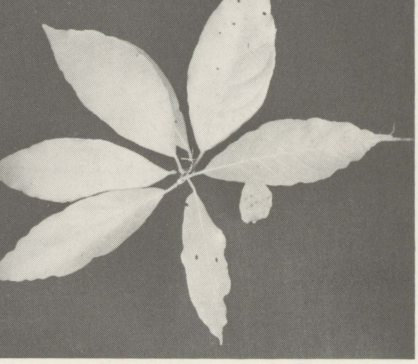


Resurrection Fern

Hurricane Damage (Donna)

35. RESURRECTION FERN (Polypodium polypodioides)—Growing all along the limb of this pop-ash are the leaves and rootstocks of this small fern. During periods of dry weather the leaves are curled, brown, and quite dead looking but after a rain they are as fresh and beautifully green as ever. This accounts for the common name. Although this fern was originally a tropical species, it has spread all through Florida and far up the Atlantic Coast. Here in Florida it is one of the most abundant ferns growing in hammocks and swamps the state over.

36. HURRICANE DAMAGE—On September 10th, 1960 severe Hurricane "Donna" swept across the Florida peninsula. Corkscrew Swamp was near the center of this destructive storm. As you proceed on the boardwalk you will note throughout the swamp evidences of this storm's fury. Trees have been uprooted, others have been broken off and all suffered loss of branches or twigs. Although the destruction was serious this was a natural disaster. A careful observer will be able to see signs of hurricanes in years past. The swamp will recover as it has many times before. The boardwalk also suffered heavy damage necessitating extensive repairs.



Southern Sweetbay

37. SOUTHERN SWEETBAY (Magnolia virginiana)—The two tall, straight trees growing here by the walk belong to this species. The lichen-covered bark is actually smooth, pale brown, and checkered. Its flowers are smaller than those of the southern magnolia, but just as fragrant. Earlier editions of this booklet identified these trees as red bay, so even the experts have trouble!

Royal Fern

38. ROYAL FERN (Osmunda regalis)—This large and showy plant is one of the most widespread ferns, for it occurs on all of the continents except Australia. Here it is growing in a clump on a cypress knee. It is found in the swamps and wet places of the north, but grows to largest size in the cypress swamps of the south.

Carolina Anole

39. LIZARDS—Two species of lizards are often seen on the walk or in the surrounding trees and bushes. The most abundant is the Carolina Anole (**Anolis carolinesis**). This lizard changes its color from dark brown to brilliant green. It may assume any intermediate shade between these two extremes. The male has a large, bright red fan on the throat which is expanded as part of the courtship behavior. The second species is the **meces inexpectatus**). The most strik-Southeastern five-lined skink (**Eu**-ing feature of this small lizard is its bright blue tail. They are most often seen running along the deck of the walk and disappearing over the edge.

Green Tree Frog

Cypress Knees

40. FROGS—Frogs are abundant but hard to see in the swamp. They occur anywhere along the walk and are often heard splashing into the water. Some 12 species have been recorded from the Sanctuary. Five of these are more frequently seen or heard. The tiny cricket frog (**Acris gryllus dorsalis**) may be heard in the lettuce lakes. It is much easier to hear their monotonous series of explosive "iks" than to find the small frogs crouching on lettuce leaves.

Two small tree frogs, the green tree frog (**Hyla cinerea**) and the squirrel tree frog (**Hyla squirella**) may be seen on leaves and stems of plants. They're usually bright green (although at times may be brown) and have a white stripe on the side. In the green tree frog, this stripe is clear and definite in contrast to the wavy indistinct line of the squirrel tree frog. The two most common large frogs are the familiar southern leopard frog (**Rana pipiens sphenocephala**) with its distinctive dark spots and the Pigfrog (**Rana grylio**). The latter is the largest frog in the swamp. This bull frog provides most of the frog legs of commerce and is avidly hunted by professional frog hunters. Its calls are so loud many people mistake their grunting for alligators.

41. CYPRESS KNEES—Growing through the water, up from the roots of the cypress trees, are many short, conical, bark-covered projections called "knees." The true function of these knees has long been under debate by naturalists. One old theory calls them "breathers" for the tree, but this has been discredited. In all likelihood they provide structural support for the Cypress where it grows in unstable sites of deep muck or organic debris. It has been further conjectured that in such sites the knees emerge as "pegs" through the shallow overlapping root system further securing one tree to the next. Where the trees are smaller and more stable due to higher bedrock, the knees are usually absent. The knees do not produce foliage or grow into trees themselves.

Fallen Cypress Log with Ferns Growing on it

42. FALLEN LOG—Cypress logs lie here and there in the swamp. Many of them fell years before the walk was built. Note how plants grow on them taking advantage of the above water location and the rich nutrients provided by the decaying wood. When a log falls it soon becomes covered with ferns and other plants which often mark its location. In a wild area such as this, fallen logs are allowed to remain so that they may add the product of decay to the soil and keep the natural cycle unbroken.

Red-Shouldered Hawk

43. RED-SHOULDERED HAWK (Buteo lineatus)—The high, shrill call, "ke-arr ke-arr," of this hawk can be heard almost constantly through the swamp. They are quite tame and may often be seen perched on a limb or soaring overhead. The contrasting black and white back pattern and reddish underparts make this one of our more handsome hawks. The food of this hawk is mainly snakes, frogs, and lizards. The red-shouldered is probably the most abundant hawk in Florida and is often seen perching on telephone poles and fence posts along the highways.

44. FLOATING TUSSOCKS—The tall vegetation in the end of this lettuce lake grows on floating tussocks. The tussocks are formed during very dry seasons. First, muck on the bottom of the lake dries and becomes light and punky; then when the water rises large pieces of the muck float to the surface. Unless these pieces break up and sink rapidly, plants get started on them and their roots hold the chunks together. When many of the tussocks gather in one area as they have here, it greatly hastens the filling up of the lake. Not all of these tussocks are large enough to support a man. This makes a tussock area very difficult to cross on foot. Water hemlock (**Cicuta maculata**) is a prominent plant growing on these tussocks. You should know this plant because its root is highly poisonous. Goldenrod, wild hibiscus, water hemp and many other plants also grow on floating tussocks.

Hibiscus

45. HIBISCUS (Hibiscus coccineus)—During the summer each year the huge, red flowers of this hibiscus provide a vivid splash of color in the swamp. Each flower is from 5 to 8 inches across and is borne on stems up to 10 feet tall. During much of the year it is not a conspicuous plant as the stems die back each year and sprout again from the roots. Its five pointed leaf is distinctive with each part toothed on the sides. (See figure.) In winter the tall dead stalks can be seen, some of them with the seed pods still attached. Another native species (**Hibiscus grandiflorus**) with large pink flowers and grayish leaves is also to be seen at the same time in various locations from the boardwalk.

Poison Ivy

46. POISON IVY (Rhus toxicodendron)—Poison ivy is an abundant member of the swamp flora. It can be seen climbing on the largest cypresses and sprouting from clumps of knees. Many people are surprised at finding it in so wet a place but it does very well indeed. Most of it has been removed from the close vicinity of the walk but care should be exercised as it keeps returning. The familiar three leaflets are quite characteristic. (See figure.) The white berries, produced in quantity, are excellent wildlife food.

Lettuce Lake

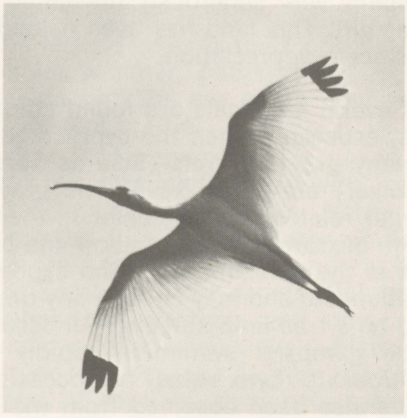
47. LETTUCE LAKES—Here and there among the large cypresses there are deeper lakes, most of which are covered with water lettuce (**Pistia stratiotes**) which floats freely on the surface. Not many years ago this was a deep, clear lake but it is now in the process of filling up. The lettuce is one of the principal sources of the dead vegetable matter which is being deposited as a rich organic peat or muck. The water in the lake varies in depth from a few inches during the dry season to more than 4 feet during the wetter times of the year. When the water is low in other parts of the swamp these lakes assume great importance as feeding areas for wildlife. Birds, fish, mammals, and reptiles all come into the lakes in abundance to feed on other forms and on each other. From a distance the thickly growing lettuce has the appearance of clipped lawn, but sad is the person who tries to walk on it! The name of "lettuce" has been conferred on this plant because of its superficial resemblance to leaf lettuce, however, the similarity is only skin deep and no one who has tried the flavor will recommend it. After extreme frost or drought the lettuce will die out but in time will re-establish itself.

Wood Stork

American Egret

48. WATER BIRDS—Several species of water birds may often be seen feeding here in the lettuce lakes or flying overhead. The little blue heron usually feeds by walking on the lettuce and picking up insects, crawfish, and small minnows. This bird is white as an immature and then, as it becomes an adult, changes to uniform dark blue.

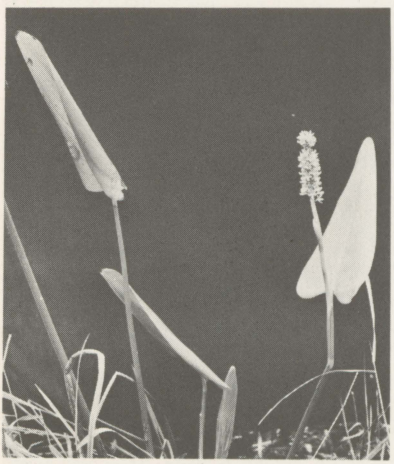
Flying over, two species of ibis may often be observed. The wood ibis, or rather wood stork as it should be called, nests in the swamp during the winter and spring months. Their nests are placed high in the large cypresses. It is largely white but its naked head and the rear edges of its wings are black. The white ibis is much smaller and its deeply decurved bill is pink or red, as are its legs. This bird is almost completely white with only the smallest of black tips on the wings; the immature is mottled brown and white. Green herons, anhingas, American egrets, great blue herons, and American bitterns occasionally come in to rest and feed. Herons fly with necks folded, ibises with necks extended.



White Ibis

Elder

49. ELDER (Sambucus simpsonii)—One of the more familiar plants growing in the swamp is the elder. It frequently grows, as it is here, on the edges of openings where it often forms dense thickets. Here in Florida the lacy, white flowers and dark red berries may be seen at any season. The berries provide excellent wildlife food.

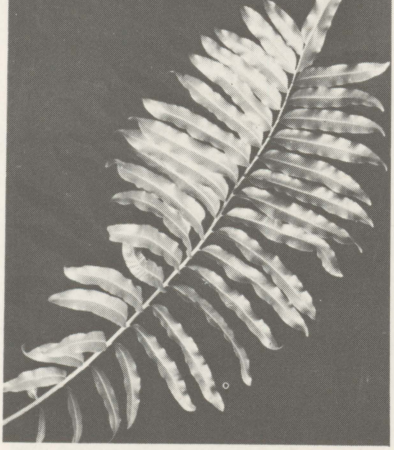


Pickerel Weed

50. ARROWHEAD AND PICKEREL WEED—The two most abundant plants that crowd the water in the open, sunlit places in the swamp are the arrowhead (**Saggitaria sp.**) and the pickerel weed or wampee (**Pontederia cordata**). Of the two the arrowhead is the tallest, pushing its large leaves and tall, white-flowered stalks above the smaller pickerel weed. The latter has spikes of violet-blue flowers and shiny, dark green leaves. See figure for leaf shapes.

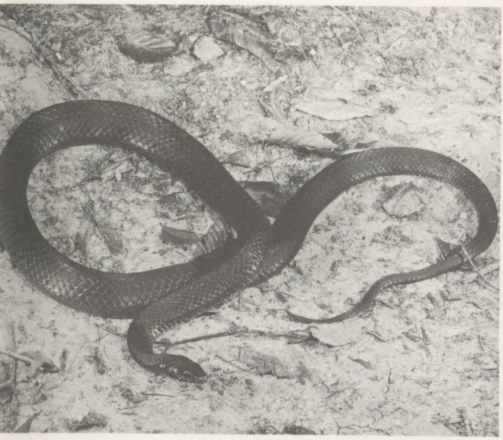
51. THE J. ARTHUR CURREY FOREST—Mr. Currey was the President of the Lee Tidewater Cypress Company which at one time owned much of the land now included in the Sanctuary. When the Society was able to purchase some 2240 acres from the Company to establish the Sanctuary, the Company very generously presented 640 acres in addition as a Christmas gift. This land has been named for the President of the Company in sincere appreciation.

52. MAMMALS—Several mammals are found commonly through the swamp. In the trees, especially when the cypress balls are ripe in fall and early winter, many gray squirrels (**Sciurus carolinensis**) and fox squirrels (**Sciurus niger**) are to be seen. The gray squirrels greatly outnumber their larger relatives, whose color in the southeast may be variously grizzled with mixtures of white, yellow and black. Fox squirrels are most often seen in the pineland and pond cypress area. Raccoons (**Procyon lotor**) are abundant and may be seen any time of day searching for food or sprawled on a tree limb sunning. An occasional otter (**Lutra canadensis**) may be glimpsed swimming rapidly along or looping over a floating log. Bobcats (**Lynx rufus**) are occasionally seen on the boardwalk. Bear have also been observed from the boardwalk.

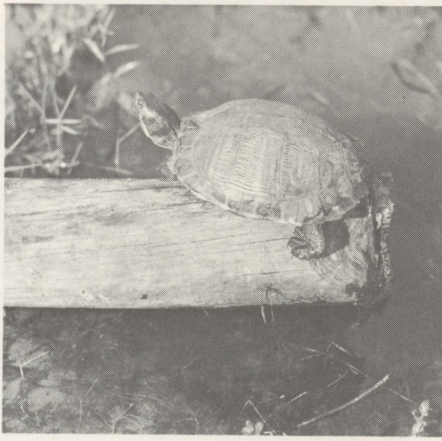


Leather Fern Frond

53. LEATHER FERN (Acrostichum danaeaefolium)—These huge, rankly growing plants are the largest of our native ferns. They attain their greatest growth in the fresh water areas south of Lake Okeechobee. Many people think of ferns as small delicate plants but some of this species have leaves almost 12 feet long! They occur commonly throughout tropical America and are reminiscent of prehistoric times when many similar plants attained huge size.



Black Racer



Red-Bellied Turtle

54. TURTLES AND SNAKES—Nine species of turtles and 17 varieties of snakes have been recorded in the sanctuary. The turtle most frequently seen on the lettuce lakes is the Florida red-bellied turtle, **Chrysemys nelsoni.** In the summer, paths of the Florida chicken turtle, **Deirochelys reticularia chrysea** are easily seen winding through the aquatic grasses of the wet prairie.

Most of the snakes are harmless water snakes such as the Florida water snake, **Natrix fasciata pictiventris** with crossbands across its body, and the Florida green water snake, **Natrix cyclopion floridana,** seen on the lettuce lakes. The eastern cottonmouth, **Agkistrodon piscivorus,** is often seen from the boardwalk, while in the drier parts of the sanctuary there are Southern black racers, **Coluber constrictor;** rough green snakes, **Opheodrys aestivus;** and other harmless varieties. Through the pineland pygmy rattlesnakes, **Sistrurus miliarius,** occur along with their larger relatives, the Eastern diamondback rattlesnake, **Crotalus adamanteus.** All reptiles, along with every other form of plant and animal life, are totally protected within the sanctuary.

Clamshell Orchid

55. CLAM-SHELL ORCHID (Epidendrum cochleatum)—Growing on the trunks of the custard apple trees are tufts of bright green, grass-like leaves. These are the shell orchids, which are scattered through the swamp. The somewhat flattened pseudobulbs at the base of each leaf provide a good identifying feature. Its flowers are produced in the fall, usually during October and November. They are almost an inch across and are yellowish with a prominent purple lip.

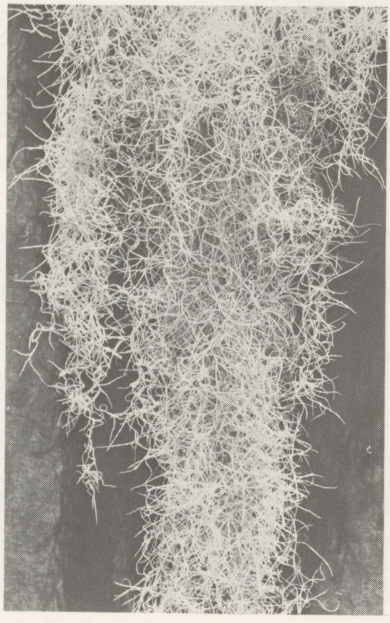
Alligator

56. ALLIGATORS (Alligator mississippiensis)—Here in the lettuce lake is one of the best spots to look for alligators. They may often be seen sunning themselves on logs, floating amid the lettuce, or on the cabbage palm island ahead of you. There are numbers of 'gators in the swamp and these vary from babies only 8 or 9 inches long up to adults of over 10 feet. When they are small they feed mostly on minnows but after they attain considerable size turtles, birds, mammals, and other prey may be taken. Contrary to general belief, the growth of alligators may be quite rapid, up to a foot a year under favorable conditions. When they reach large size this rate will slow considerably.

Limpkin

57. LIMPKIN (Aramus guarauna pictus)—Here and there among the flags a large dark brown bird may walk jerkily along or fly off through the trees with a stiff awkward wingbeat. This is the peculiar limpkin. If a good view is possible the white flecks in the plumage and the long straight bill are obvious. Florida is the only state which has limpkins in any number. The primary food of this bird is the large "bulls-eye" snail (**Pomacea**) and its shells are often seen on logs and stumps where the limpkin has left them. The voice of the bird is a long wail which produces an eerie effect as it echoes among the cypresses. Look for it anywhere along the boardwalk.

58. SPANISH MOSS (Tillandsia usneoides)—Spanish moss, which drapes the trees all along the boardwalk, is the most widespread of all the air plants in the United States. It is another member of the pineapple family (as are several of the air plants mentioned earlier) and not a moss at all. Many people think that it is a parasite and kills the trees on which it grows. This is not true as all of its food comes from the air. At times it may damage a tree by shading some of the leaves or when wet and heavy may break off a limb. These are the only ways that it can injure its host. It has tiny, bright green flowers which may be seen in late spring. They produce a delicate scent which is particularly noticeable at night. Its small seeds have a silky parachute and are carried from tree to tree by the wind.



Spanish Moss (Detail)

Snail Egg Mass

Night Blooming Orchid

Butterfly Orchid

59. SNAIL EGG MASSES — Here and there along the boardwalk from March through September, masses of small white spheres can be seen clinging to trees, plants, or even the boardwalk posts. These are the eggs of the large "apple" or "bulls-eye" snail (**Pomacea caliginosa**). The eggs are somewhat larger than B-B shot, are pinkish when first deposited, and become whiter as they age. Each has a hard brittle shell and just before hatching contains a small snail complete with shell. The egg must remain above water or the embryo snails will drown. The number of eggs in each mass varies from half a dozen to as many as 75. These snails are important as food for limpkins and elsewhere in Florida they provide the sole item of diet of the rare Everglade kite.

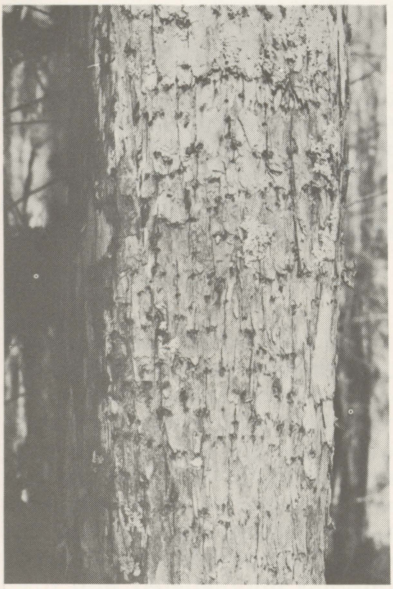
60. NIGHT-BLOOMING ORCHID (Epidendrum nocturnum)—The large clump of slender stems growing on the cypress belong to this plant. The spidery, inconspicuous flowers of this orchid are unusual in that they are fragrant only at night. The flowers are produced mostly in the fall during September and October.

61. BUTTERFLY ORCHID (Epidendrum tampense)—These small orchids growing in clusters up and down the trunk of a cypress are the commonest and most hardy of Florida's tree orchids. They occur in a variety of places over much of the southern part of the state. Their flowers are about an inch across and are greenish brown with a showy white lip which has a rosy center. The blooms are produced from late May through June. They are sometimes called onion orchids. (Note lichens on bark.)

62. COW-HORN OR CIGAR ORCHID (Cyrtopodium punctatum)—This orchid, growing on a cypress, is one of the largest of our epiphytic (tree growing) orchids. Its long conical psuedobulbs are responsible for its common names. Its flowers are small but showy and are produced in large bunches on a bloom-stalk which may be 3 feet in length. The flowers are yellow, spotted and blotched with reddish brown, and appear in the spring. It was once common but has now become rare because of excessive collecting by orchid fanciers.

Cow-Horn Orchid

Sapsucker Holes



63. SAPSUCKER HOLES—In the cypress to the left are many small holes in the bark made by a yellow-bellied sapsucker. Sapsuckers are woodpeckers which drill holes into the inner bark of trees and eat the sap which flows out. Their tongues are brush-like at the tip to aid in gathering the sap. Also eaten are the bark removed and insects attracted to the running sap. Here sapsuckers are winter visitors and this tree has been used by the birds since 1955. Sapsuckers are unobtrusive birds and their cat-like "mew" is often the first sign of their presence.

Lichens

64. LICHENS—On the trees all around the walk here, and throughout its length, many lichens are to be seen growing. Lichens are interesting plants as they are really a plant partnership. Each lichen is composed of an alga and a fungus growing together. Neither could exist without the other. The alga produces the food while the fungus provides support for them both. Here in the swamp, lichens take various forms. Many of them are simply patches on the bark which may be white, green, gray, or even pink. These look very much like patches of paint smeared on the trees. Others are rather scaly, looking as if they had been glued on and had started to peel, while still others resemble mosses and hang in light green streamers from twigs and trunks.

65. BOARDWALK—You have now reached the end of the Corkscrew Swamp boardwalk, 5800 feet from its beginning. It was constructed in several segments beginning in 1955. A second section was added in 1956 and these two made up the entire walk until 1968. Increasing use made it desirable to make the walk one-way so, in the latter year, a loop was added to allow return via another route. The final portion, the spur and observation platform in the central marsh, were completed in 1969. Originally the wood used in construction was cypress but this has become unavailable in recent years. Now pine is used throughout. The posts are "lightwood," pine naturally impregnated with rosin and almost rot proof. The stringers and decking are pressure treated to retard decay. Maintenance costs are considerable even though the best of materials are used. Building the walk was a difficult task. The original work was done by the Whiddens, one of the pioneer families of the district. Later portions have been added by Audubon staff from several sanctuaries. Construction necessitates long hours of work in mud and water. Posts are set, stringers and decking added as the work progresses, allowing materials to be moved over the completed sections. Most of the money for construction has been donated specifically for that purpose.

Building the Boardwalk

The National Audubon Society is dedicated to the preservation of wilderness, wildlife and natural beauty as essential elements of an environment in which man can thrive and enjoy being human. In this cause, we solicit your participation.

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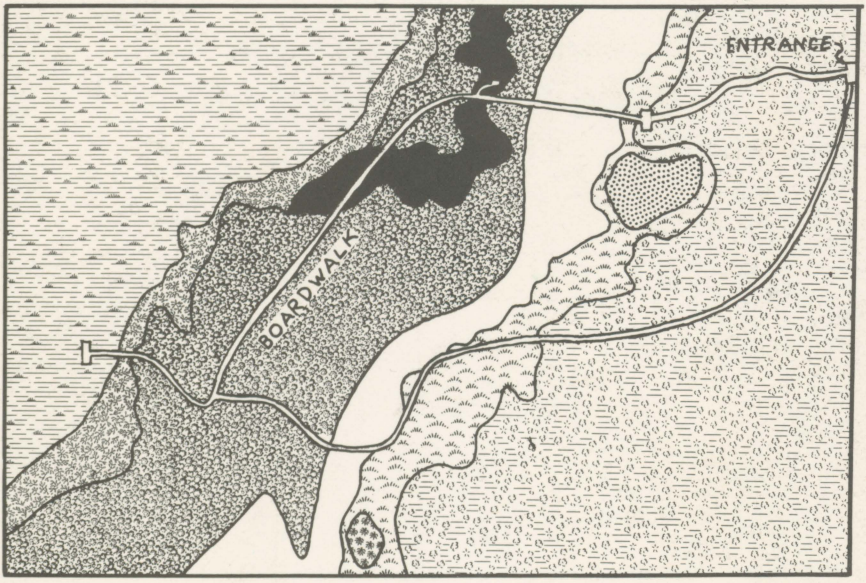

CORKSCREW SWAMP SANCTUARY
VISITOR AREA

BALD CYPRESS
POND CYPRESS
PINE FLATWOODS
HAMMOCKS
WILLOW
WET PRAIRIE
MARSH
PONDS

LETTUCE AND
CUSTARD-APPLE PONDS

GENERAL INFORMATION

Sanctuary headquarters and boardwalk open to the public 9 A.M. to 5 P.M. daily, including holidays.

Admission $2.00 per person for persons 12 years of age or older.

Children under 12 years of age admitted free, if accompanied by responsible adult.

No animal pets admitted.

No picknicking or overnight camping allowed within the sanctuary boundaries.

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