

Cypress: Florida's Majestic and Beneficial Wetlands Tree¹

Mary L. Duryea and L. Annie Hermansen²

An overview of the history of cypress—one of Florida's most beautiful and majestic trees that today dominate the forested wetlands that occupy about 1.6 million acres or 5% of the states landscape.

Cypress in Florida

Cypress can live for hundred of years, has “knees” that protrude above the soil, and loses its leaves in the winter, hence the “bald” cypress name. Baldcypress is said to be the largest tree in North America east of the Rockies (Dennis 1988). Several large cypress trees and swamps are in Florida and can be viewed and experienced by boardwalks, rivers, and trails. The Florida state champion cypress, called the Senator tree, is located in Big Tree Park near Longwood.

Cypress swamps are forested wetlands dominated by cypress trees and located along stream and riverbanks, spring runs or in ponds with still or slow moving water. Swamps often have long periods of flooding, and cypress is the most flood-tolerant of all the Florida tree species. The species composition and different kinds of swamps are determined by three environmental factors: hydro-period, nutrient

inputs, and fire (Ewel & Odum 1984). One kind of swamp—the cypress dome—develops in a depression in the ground in pine flat woods ecosystems; the water in these ponds moves very slowly and only drains internally through the water table (Figure 1).



Figure 1. Cypress domes, a dominant feature of Florida's landscape.

Cypress and Its Relatives

Cypress is a conifer in the *Taxodiaceae* Family, often called the Baldcypress Family. The 14 species in this family are found in China, Japan, Formosa, Tasmania, and North America. In the United States, cypress's only other relatives are the *Sequoia* and

1. This document is CIR 1186, one of a series of the School of Forest Resources and Conservation, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date July, 1997. Revised November 13, 2000. Reviewed: January 2003. Minor Revision: June 2006. Please visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.

2. Mary L. Duryea, Professor and Associate Dean; and L. Annie Hermansen, graduate student, School of Forest Resources and Conservation; Cooperative Extension Service; Institute of Food and Agricultural Sciences, University of Florida, Gainesville, 32611.

Sequoiadendron genera, which include the redwoods of California.

Although cypress was once widely distributed across North America, most of its pre-historic forests are now extinct. Only three forms of the cypress genus, *Taxodium*, remain: Baldcypress, *Taxodium distichum* var. *distichum* (L.) L. Rich.; Pondcypress, *Taxodium distichum* var. *nutans* (Ait.) Sweet; and Montezuma cypress, *Taxodium mucronatum* (Ten.) (Bailey & Bailey 1976). Baldcypress occurs in the Atlantic and Gulf coastal plains from Delaware to Texas and also in the Mississippi Valley north to southern Illinois (Figure 2).

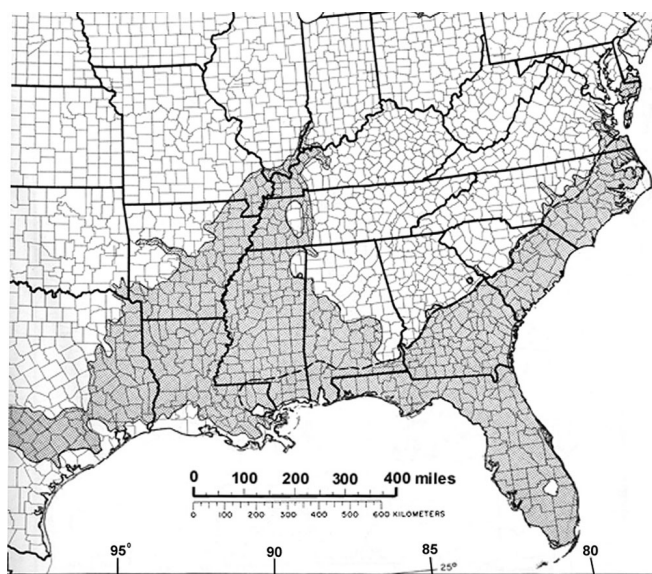


Figure 2. The natural distribution of cypress in the southern U.S. (Little, 1971). Credits: Little, 1971.

Pondcypress is found in a more limited range with a northern limit of Virginia. Montezuma cypress is a native of Mexico growing in the Central Plateau along the Pacific Coast (Harrar & Harrar 1962, Bailey & Bailey 1976, Brandt & Ewel 1989).

Baldcypress and Pondcypress

Size and Shape

Baldcypress is a tree growing to 150 feet tall and more than 6 feet in diameter. Its leaves are flat, 1/2 to 3/4 inches long and grow on both sides of the horizontal branchlets (Figure 3). Pondcypress is a smaller tree with awl-shaped or scale-like leaves pressed close to its (sometimes more) pendulous branchlets (Figure 4).



Figure 3. Baldcypress leaves are flat, and grow both sides of horizontal branchlets. Credits:

These differences are distinct at some locations but not at others. This is because the two varieties can interbreed causing varied characteristics to appear on the same tree. Both varieties are deciduous, losing their leaves in the late fall and regrowing them in the spring. (Figure 5).

Brandt & Ewel (1989) have described baldcypress as a fast grower in height and diameter and having thin, tight bark compared to pondcypress which is a small, slow growing tree with thick, shaggy bark.

Ecology

Baldcypress grows in and along flowing water: river swamps, stream banks, spring runs and lakeshores. Pondcypress is limited to ponds with still or slow-moving water. When pondcypress is faced with soils poor in nutrients, such as the marl soils in the Everglades or the clay soils in the Florida



Figure 4. Pondcypress leaves are awl-shaped or scale-like, pressed close to pendulous branchlets. Credits:

Panhandle, growth may be extremely slow giving the trees a stunted or dwarfed appearance. These trees are called dwarf cypress or hat-rack cypress (Brandt & Ewel 1989). Brandt and Ewel provide an excellent summary of the differences between bald and pondcypress: Baldcypress grows at low stem densities in locations with moderate water flow, high-nutrient availability, and rare forest fires. Pondcypress grows at high stem densities on sites with slow-to-stagnant water, low-nutrient availability, and occasional forest fires.

Cypress Knees

Both cypresses are known for their “knees” and buttressed trunks, but the biological function of these is as yet undetermined. Some studies have reported that they serve to supply oxygen to the roots of the trees and also anchor and support the tree in an unstable environment (Dennis 1988). The knees are a part of the root system, which grows above the soil. Knees vary in height: some are reported up to 12 feet (Dennis 1988).



Figure 5. Both baldcypress and pondcypress lose their leaves in the fall. Credits:

Where to Go to See Cypress in Florida

Here is a diagrammatic map of Florida (Figure 6) locating some of the many parks and other natural areas where cypress can be found in Florida. The number at the end of each listing that follows corresponds to the number located on this map.

South Florida

- *The Everglades National Park.* This International Biosphere Reserve has one-third of its area covered by freshwater marshes and cypress heads, while the other two-thirds covers coastal estuaries. Everglades National Park includes the southernmost limit of the range of cypress in the United States. An example of a stunted dwarf cypress forest with heights ranging from 2 feet to 7 feet may be seen along the southern part of the park along the road to Flamingo. Park headquarters is located on

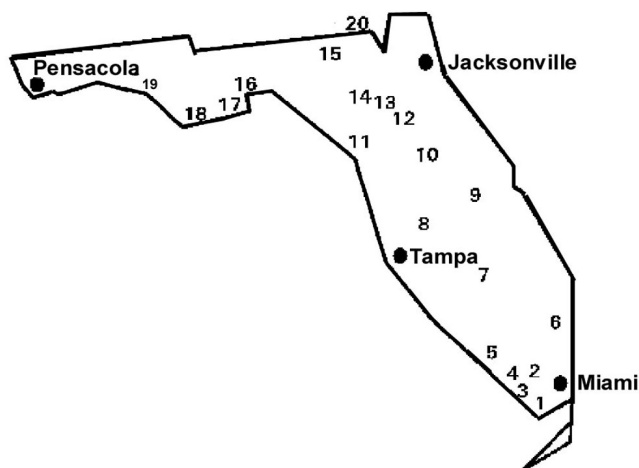


Figure 6. Diagram of Florida showing 19 sites where you can enjoy viewing cypress.

Highway 9336, 10 miles southwest of Florida City. <http://www.nps.gov/ever/>.

Note: Several parks feature boardwalks that give you the rich experience of wildlife and plants in wetland communities (Figure 7).



Figure 7. Several parks feature boardwalks that give you the rich experience of wildlife and plants in wetland communities.

Big Cypress Swamp. The following parks and preserves (numbers 2 through 7) are all part of the Big Cypress Swamp, a vast area which includes savanna-like forests of cypress along with marshes, pinelands and hardwood forests covering all of southwest Florida (Duever et al. 1984). Cypress located in the Big Cypress Swamp are either stunted pondcypress (also called pygmy, hat-rack, or scrub) or domes and strands made up of larger cypress trees.

- *Big Cypress National Preserve.* This preserve, covering more than 700,000 acres, includes the heart of the Big Cypress Swamp. Visitors have a chance to see cypress enjoying recreation activities such as hiking, camping (free in most areas), canoeing and biking. The Preserve visitor center is located on the Tamiami Trail (U.S. 41) in Ochopee, about halfway between Miami and Naples. <http://www.nps.gov/bicy/>

- *Collier-Seminole State Park.* This park boasts 6,423 acres of cypress swamp, hardwood hammocks and mangrove swamps. It is located on US 41, 17 miles south of Naples; 20200 E. Tamiami Trail, Naples, FL. <http://www.floridastateparks.org/collier-seminole>

- *Fakahatchee Strand State Preserve.* This preserve contains what is considered the most unusual cypress-mixed hardwood forest in the U.S., as well as the world's only royal palm-baldcypress forest. Impressive baldcypress forests and cypress domes are a common feature here. One of the last remaining virgin cypress stands (which escaped being logged during the 1940s and 1950), can be viewed from a 2,000-ft boardwalk immediately to the north of a Seminole Indian village at the Big Cypress Bend on the Tamiami Trail. Its exact location is on U.S. 41, seven miles west of the intersection of S.R. 29. Preserve headquarters are located on Janes Memorial Scenic Drive, just west of Copeland on S.R. 29. <http://www.floridastateparks.org/fakahatcheestrnd>

- *Corkscrew Swamp Sanctuary.* This 11,000-acre National Audubon Society sanctuary is noted for its large wood stork nesting colony and the largest remaining sub-tropical, old growth baldcypress stand in Florida. There is a 5,800-ft boardwalk for excellent views of these giant trees, some over 500 years old. The sanctuary headquarters can be reached by taking Exit 17 (S.R. 846) off I-75. Follow S.R. 846 east 15 miles, and then turn north at the entrance sign, following Sanctuary Rd. for 1 1/2 mile. <http://www.corkscrew.audubon.org/>

- *Loxahatchee National Wildlife Refuge*. This 145,635-acre refuge has a quarter mile-long boardwalk leading to the interior of a cypress dome. It is also a favorite with bird-watchers. The main entrance and refuge headquarters are located off U.S. 441 between Boynton Beach Blvd. and Atlantic Ave., about 15 miles south of West Palm Beach in Boynton Beach. There are also two other entries to the refuge, one located at the Hillsboro recreation area on S.R. 827 (Lox Rd.); the other at the Twenty Mile Bend Recreation Area entrance, on U.S. 98. <http://loxahatchee.fws.gov>
- *Highlands Hammock State Park*. One of four original Florida state parks, Highlands Hammock offers an extensive system of nature trails and boardwalks through wetland hammocks including live oak/cabbage palm forests and a large blackwater-river cypress swamp. To reach park headquarters take Highway 27 until Highway 634 (Hammock Road) near Sebring, FL. <http://www.floridastateparks.org/highlandshammock/>

Central Florida

- *Withlacoochee State Forest (Richloam Wildlife Management Area)*. This forest is part of the Green Swamp, an 800-sq.-mile swamp system in west-central Florida (Larson 1995). Nature trails and camping sites are available to experience the two major swamp communities: cypress/mixed hardwood swamps and cypress domes. The Richloam Wildlife Management Area is the best place within the state forest to see the cypress, best observed by taking Hwy 50 (exit off I-75). The Baird tract is also a good place to see cypress, located east of Richloam along the same highway. Maps and other information can be attained from the state forest headquarters, located on Hwy 41, seven miles north of Brooksville. http://www.fl-dof.com/state_forests/withlacoochee.html
- *The Florida State Champion Cypress Tree*. The American Forestry Association and state forestry agencies collect data on sizes reached by North American trees. Size is calculated by measurements taken of the tree diameter, height, and crown spread. Based on the addition of all these measurements, a tree is awarded a number of points. Trees with the largest number of points may be classified as state or national champions. The current national champion cypress is in Cat Island Swamp in north-central Louisiana with a score of 748 points. The Florida state champion (with 557 points), commonly referred to as the Senator, is located along Highway 17/92, one mile northeast of Longwood, in the Big Tree Park. There are areas to park alongside the road, near the Senator tree. For more information, call (407) 788-0405.
- *Silver Springs*. Second-growth baldcypress are abundant along spring edges and can be seen from the tour boats at one of Florida's oldest amusement parks. Located near Ocala at 5656 East Silver Springs Blvd., Silver Springs, FL; <http://www.silversprings.com/>

North Florida

The Suwannee River. Baldcypress trees can be seen along almost the entire length of the Suwannee River, in sloughs and backwaters. Though the Suwannee is the most easily visited river in this region, cypress can also be seen along the Alapaha and Santa Fe Rivers, tributaries of the Suwannee. One of the largest stands of baldcypress is at the confluence of the Suwannee and Santa Fe Rivers. There, baldcypress grow along both banks of the Santa Fe and along sloughs flowing into the Suwannee. Pondcypress in this region can be seen in many of the sinkholes near the Suwannee. Public recreation areas in this region where cypress can be seen are:

- *Manatee Springs State Park*. From the gushing springhead, a crystal-clear spring runs through a swamp of cypress, gum, ash, and maple trees to enter the Suwannee River. A 1/4 mile boardwalk provides an inside look at this beautiful river-bordered swamp. The Park is located at the end of S.R. 320, off U.S. 98, six miles west of Chiefland. <http://www.floridastateparks.org/manateesprings>

- *Morningside Nature Center*. A boardwalk provides a closer look at a pondcypress dome. Morningside is in Gainesville at 3540 East University Avenue, 2.5 miles east of Waldo Rd. <http://www.natureoperations.org/Pages/Parks/MNC.html>
 - *O'Leno State Park*. A beautiful forest along the banks of the Santa Fe River, this park offers swimming, hiking, canoeing and camping. Park headquarters are located on U.S. 441, five miles north of High Springs. A convenient way to get to the park headquarters is to take Exit 80 (High Springs exit) off I-75, which leads into U.S. 441. Follow 441 for five miles south until reaching the park. <http://floridastateparks.org/oleno>
 - *Ichetucknee Springs State Park*. Baldcypress can be seen on all sides as you inner tube or canoe down the clear, sparkling Ichetucknee River. The park is in the Santa Fe watershed, four miles northwest of Ft. White, off S.R. 47 and 238. <http://www.floridastateparks.org/ichetuckneesprings>
 - *Suwannee River State Park*. Visitors can enjoy cypress by exploring the 1,800 acres of diverse forest communities along the two main hiking trails—the Suwannee River Trail and the Lime Sink Run Trail. If you seek a self-guided tour, both trails have labels explaining the hammock, its various plants, and animals. You can also experience the cypress by taking a canoe ride down the Suwannee River or the Lime Sink Run. This historic park is 13 miles west of Live Oak, off U.S. 90. <http://www.floridastateparks.org/suwanneeriver>
- (*Includes opportunities for canoeing or riding inner-tubes to enjoy the cypress-bordered springs.)

The Panhandle

- *Wakulla Springs State Park*. Visitors can enjoy one of the worlds largest and deepest freshwater springs and the Wakulla River from a glass bottom boat tour or on a riverboat cruise. Fourteen miles south of Tallahassee on S.R. 267 at S.R. 61. <http://www.floridastateparks.org/wakullasprings>
- *Apalachicola National Forest*. This national forest provides a variety of activities including camping, hiking, boating, and canoeing. Some of the more easily accessible areas within the national forest for cypress viewing are Wright Lake, Hickory Landing, Camel Lake, and along the Apalachee Savannahs Scenic Byway (Highway 379). For more information contact the District Office, which includes a visitor center, in Bristol on Highway 20. http://www.fs.fed.us/r8/florida/recreation/index_apa.shtml
- *Tates Hell*. This is one of the newest state forests, in existence since 1994. Within its 130,000 acres dwarf cypress, reaching 6 to 7 feet tall and most being over 100 years old, can be seen. The two main roads currently established for public use are Tower road and Buck Siding Road. A variety of public recreational activities such as canoeing, biking, horseback riding and picnicking are permitted in the park. It is located in west-central part of Franklin County, near the base of the Apalachicola River. http://www.fl-dof.com/state_forests/tates_hell.html
- *Choctawhatchee River and Holmes Creek Management Area*. Though the Choctawhatchee River is little-known it is the third-largest river in Florida. Reports of some of the largest cypress trees in Florida outside of Corkscrew Swamp are along this river. The area covers approximately 51,000 acres and extends 41 miles along the Choctawhatchee River in Bay, Holmes, Walton, and Washington counties—and nine miles along Holmes Creek. The best way to see cypress here is by canoe, with several canoe liveries available in the area. Hiking and primitive camping are also options. For more information, call the Northwest Florida Water Management District office in Pensacola. http://www.floridaconservation.org/recreation/cooperative/choctawhatchee_river.asp
- *The Okefenokee National Wildlife Refuge*. Is a two-state park—primarily in southeastern Georgia—it overlaps into Florida northeast of Lake City. It is estimated that 21 percent of this 430,000 acre swamp is made up of pure cypress

or cypress mixed with other species.

Pondcypress predominates; baldcypress is relatively uncommon. The west entry, via the Stephen C. Foster State Park, is 18 miles northeast of Fargo, GA and can be reached by taking GA Hwy 94 (FL Highway 2) to Highway 177, which leads to the refuge entrance. Canoe and motorboat rentals are available here for access to large baldcypress. Camping and hiking is also an option. The North entrance is via the Okefenokee Swamp Park, a private, non-profit attraction. The east entrance provides access to the core off the Okefenokee via the manmade Suwanee Canal. The entrance is 8 miles southwest of Folkston, GA on State Highway 121/23 and 3 miles west of the main entrance sign. The refuge visitor center is located here as well as a 4,000-ft boardwalk, where mainly pondcypress and some baldcypress can be observed. There is also 4.5 miles of hiking trail, boat and canoe rentals.

<http://www.fws.gov/okefenokee/>

History of Cypress Swamps in Florida

The Very Old Cypress

Geologists believe cypress trees have been present in southwest Florida for just over 5,000 years and for around 6,500 years in the far northern region of the state. Some of the old-growth giants still present in the Corkscrew Swamp are over 500 years old and represent only the seventh or eighth generation of cypress located in this region (Ripple 1992).

Cypress has long been appreciated for its beauty, size and longevity. In recounting his travels through Florida, William Bartram (1928) referred to the "majestic stature" of cypress and described how "on approaching it we are struck with a kind of awe". Over 100 years ago enormous dugout canoes of cypress carried 20 to 30 Native Americans on trading voyages across the Straits of Florida to Cuba (Carr 1994).

Early Harvests

During the first half of the 20th century, logging removed the majority of the large, old-growth baldcypress trees in virtually all the swamps in Florida (Figure 8). The heartwood in these trees, which required centuries to develop, was marketed as "tidewater cypress", known for its durability, attractive appearance and workability (Ewel 1989). It got the name "eternal wood" from long-term use as hollow logs installed as water pipes in 1798 that were still working when removed in 1914 and reports of cypress shingles lasting 250 years (Dennis 1988). Pondcypress was also extensively harvested but was not considered so valuable, due in part to its tendency to develop heart rot (Terwilliger and Ewel 1986).



Figure 8. Old-growth virgin cypress (promoted as "Virgin Tidewater Red Cypress") was harvested for its prized, decay-resistant heartwood. The tree with the tape measure was reported to be 126' tall and 54' around. This tree was located in Longwood, Florida, and was thought to have been the largest cypress tree in the U.S.

The expansion of the railroad system in the 1900s was the catalyst for this boom in cypress harvesting (Sternitzke 1972) (Figure 9).



Figure 9. Old-growth cypress traveled by rail to sawmills.

Products such as cross ties, shingles, siding for buildings, pilings, ladders, softcases, fence posts, and stakes were marketed and sold nationally (Figure 10, Figure 11).



Figure 10. The Southern Cypress Manufacturers Assn. displayed Tidewater Red Cypress at the New York World's Fair in 1939.

Claims in displays of products by the Southern Cypress Manufacturers Association were that these cypress products had been protected from termites for 300 years. Cypress knees were marketed as beehives and birdhouses (Brandt & Ewel 1989). Due to its ability to tolerate dampness, without affecting a liquids taste or odor, cypress was ideally suited for water tanks and cisterns (Burns 1980). These new marketing tactics increased demand, which increased the production of cypress lumber from 495 million board feet in 1899 to its peak in 1913, when more



Figure 11. The Southern Cypress Manufactures Assn. also exhibited at the 1941 Florida State Fair in Tampa.

than one billion board feet were milled (Williston 1980).

From Louisiana to Florida

By the Great Depression the cypress industry had virtually collapsed in Louisiana, and Florida became the leading state in cypress lumber production. In 1931, Florida produced 144 million board feet compared to 52 million in Louisiana (Brandt & Ewel 1989) (Figure 12, Figure 13, Figure 14). The reason for Louisiana's decline has been attributed to two factors: 1) economic and physical constraints to forestry operations in wetland sites; and 2) most of the readily accessible, old-timber had already been cut (Jackson & Morris 1986). Major logging areas in Florida were the Suwannee and Apalachicola Rivers and parts of the Florida peninsula (Mattoon 1915)—due principally to the ease of floating logs down Floridas large rivers.

In the following years, the cypress industry experienced small rises and falls, with southern sawmills cutting 240 million board feet in 1954 and less than 200 million board feet in 1980 (USDA 1980).

Recent Harvests

Today, in many of the previously harvested oldswamps, trees have grown to merchantable size. Cypress harvesting is on the rise again. In the eight years preceding the 1987 Florida inventory, 32



Figure 12. Historic photo of a cypress sort-yard, Locochee, Florida.

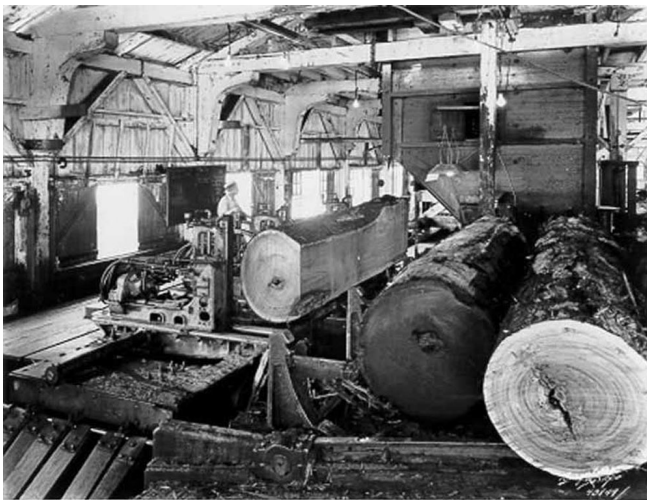


Figure 13. Cypress sawmill in Locochee, Florida.

million cubic feet were harvested annually in Florida; in the eight years before the 1995 survey, the annual harvest was 42 million cubic feet (Brown 1987, 1995).

To compare to historical numbers, this included 140 and 113 million board feet of saw timber in 1987 and 1995, with landscape mulch becoming a large component especially in 1995. While board feet of



Figure 14. A typical cypress yard and stacking machine.

saw timber produced in the 90s decreased, the increased total annual harvest (from 32 to 42 million cubic feet) most likely reflects the growth in the mulch market.

The vast majority of cypress remaining in Florida are pondcypress, with an estimated 592 million trees (5 billion board feet) compared to 68 million baldcypress trees (2 billion board feet) (Brown 1995).

Uses and Benefits of Cypress Swamps

Historically, interest in the commercial value of swamps centered on timber harvest and drainage for land development. Today, with the public's interest in the multiple benefits and uses of swamps, more thought is being given to multiple management. Understanding the importance of cypress swamps as isolated ecosystems and as part of the interdependent whole has become important to maintaining the health of Florida's environment (Figure 15, Figure 16).



Figure 15. Cypress wetlands provide multiple benefits to Floridians including wood products: saw timber and mulch.



Figure 16. Cypress wetlands provide recreation, water storage, and groundwater recharge.

Wood Products

Today cypress trees are harvested for two major products: saw timber (dimensional lumber) and landscape mulch. Of the 42 million cubic feet of timber harvested each year in Florida (Brown 1995), about 53% is cut into dimensional lumber at sawmills and 47% is chipped for landscape mulch (Irvin 1996). Originally the cypress mulch industry began by using waste wood produced from sawing operations. However, with the expansion of mulch-use in landscaping in the last several years (Black et al. 1993) came an increase in demand for cypress mulch. This growing use of cypress for mulch has contributed considerably to the harvesting of trees previously considered too small to be merchantable and to the increase in pondcypress harvesting.

In the first half of the 20th century when 800- to 900-year-virgin cypress was harvested, large

baldcypress trees with abundant heartwood produced decay-resistant products for outdoor use such as cypress shingles, decking, paneling, water pipes, water tanks, and even grave markers (Dennis 1988). Pondcypress was often used for lower grade products such as poles and fence posts. Today, even though cypress wood still has the reputation for durability, the smaller second-growth cypress trees have very little decay-resistant heartwood and wood preservatives are necessary. Some of the products made from cypress lumber today are fencing, interior paneling, and decking (Brandt & Ewel 1989).

Wildlife Habitat

Cypress swamps provide habitat to many wildlife species, including some that are rare and endangered, such as limpkins and wood storks. The density of plants in cypress swamps also creates a favorable habitat for large mammals, and the abundance of hollow trees provides homes for many birds and tree-dependent mammals (Ewel 1990). Wood ducks, for example, are common residents and also consumers of cypress seeds giving them a reputation of being good seed disseminators and contributing to the regeneration of cypress (Dennis 1988).

Recreation

Cypress swamps are very popular for use as recreation areas as parks, recreation centers, wildlife refuges, as well as national and state forests. They are especially interesting to the public in areas where they can be accessed by boardwalks and nature trails (Wharton 1977). This access into swamps provides excellent opportunities for educating the public about the benefits of wetlands to the state. With the growing interest in ecotourism (nature recreation), visitors to cypress swamps in recreational areas as well as commercial forests are expected to increase.

Wastewater Recycling

Cypress swamps can help in maintaining and enhancing water quality. Cypress ponds have been documented to remove both phosphorus and nitrogen from secondarily treated wastewater, by soil processes and plant uptake. After taking up these nutrients, cypress growth can increase dramatically

but there is some concern about the impact on wildlife populations; the wastewater may affect plants and small organisms which animals depend on for food and shelter (Nessel et al. 1982, Ewel 1990).

Flood Control and Groundwater Recharge

Cypress ponds are depressions in the ground that have the ability to hold more water than soil of the same volume. Runoff from storms can be stored in cypress ponds making them excellent flood control prospects (Ewel 1990). After the rainy season ends and water tables in surrounding soils drop rapidly, these ponds can also contribute to recharging groundwater. It is not clear yet, however, how purposely directing urban runoff to ponds might impact plant and animal communities in the ponds.

Conclusions

Swamps dominated by cypress, one of Florida's most beautiful and majestic trees, occupy about 1.6 million acres or 5 percent of the state's landscape. Cypress is a tree species within the Taxodiaceae Family, often called the Baldcypress Family. Baldcypress and pondcypress are two varieties, which grow in distinct habitats in Florida. Baldcypress grows in and along flowing water such as river floodplains, stream banks, spring run, and lakeshores. Pondcypress is limited to depressions, which form ponds with still or slow-moving water. During the first half of the 20th century logging removed the large, old-growth baldcypress trees in virtually all the swamps in the state. (The durability, decay resistance, and appearance of this beautiful wood made it prized throughout the United States). Today, many cypress trees are of merchantable size again and harvesting of both varieties has increased to produce two major products: lumber and landscaping mulch. Other benefits of cypress swamps include wildlife habitat, recreation in numbers of parks and preserves, wastewater recycling, flood control and groundwater recharge.

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