

THE BATTLE CREEK CYPRESS SWAMP OF CALVERT COUNTY

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A five-foot cypress, believed to be over 450 years old.

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The bald cypress, *Taxodium distichum*, holds high rank among the interesting trees of the world. Extensive cypress swamps of this country extending from Maryland and Delaware around the Gulf of Mexico to Texas and up the Mississippi River to southern Indiana and Illinois have aroused interest since early Colonial days. The unusual cypress knees, protrusions pushing up through the water and muck to a height of 1 to 3 or even 4 feet, are a subject of great curiosity (fig. 3). Maryland is fortunate in having two of the most northern stands of this tree: one along parts of the Pocomoke River drainage on the Eastern Shore of Maryland and the other along Battle Creek some 2 miles south of Prince Frederick (fig. 4). The latter is just a little over an hour's drive from Washington and a little longer from Baltimore. Thus a unique cypress swamp is within very easy reach of the vast population of these rapidly growing cities and their suburbs. The nearest extensive cypress swamp south of Maryland is the Dismal Swamp near Norfolk, Virginia.

The bald cypress was once much more widely distributed over Maryland than at present. For instance, it is found in the Pleistocene deposits in the Calvert Cliffs and in Washington, D. C. Fossil cypress was excavated from a deposit at a depth of 20 to 30 feet at the latter location, coming from an old Pleistocene swamp bed estimated to be

100,000 or more years old. Undoubtedly, the virtual disappearance of cypress from the Maryland scene occurred during one of the glacial periods of the Pleistocene epoch when Calvert County was completely inundated with salt water. The fourth interglacial sea that was formed 20,000 to 125,000 years ago did not flood the county, according to Maryland Geological Survey studies and in favorable areas such as the head of Battle Creek cypress flourished.

The present stand of Battle Creek cypress trees has been cut over many times and has been reduced by other factors to less than 100 acres since Colonial days. Most of the remaining trees, especially the

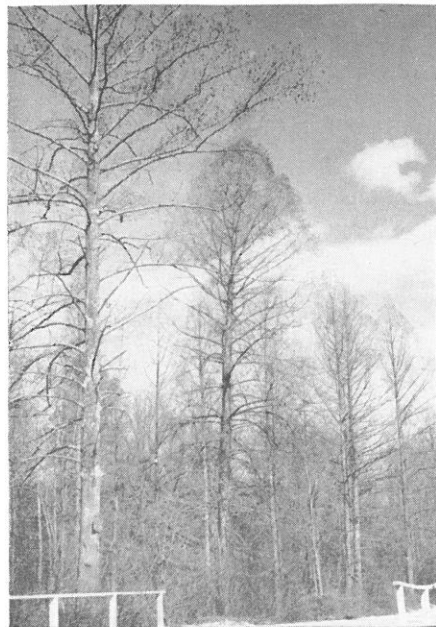


Figure 2. Young cypress growth.

younger ones, are in good condition and making rapid growth. A limited number of the large trees are flat-topped as a result of gradual decline from unknown causes. The age of the trees varies greatly. The large tree, 5 feet in diameter, shown on the cover, would be nearly 500 years old on the basis of the average diameter-age

press tree shown on the cover has many of its roots in the debris accumulated around the base of the tree.

The bald cypress differs from most other coniferous trees in that it drops its small branches with attached leaves in the fall. These narrow linear leaves are $\frac{1}{2}$ to $\frac{3}{4}$ inch in length and are arranged



Figure 3. Note how base of tree is made up of fluted enlargements which help to give it stability on mucky site.

table prepared by the U. S. Forest Service for Louisiana cypress. Most of the trees in the Battle Creek headwaters are 1 to 4 feet in diameter, and, of course, are much younger. They represent a good typical stand of tall straight cypress. Black gum and holly are typically found in and around the Battle Creek stand of cypress. The holly growing beside the large cy-

in featherlike fashion on the small branchlets. The leaves and fruit are shown in figure 3. The latter consists of a round cone or ball about 1 inch in diameter made up of thick irregular scales. A rapidly growing young tree is somewhat conical, figure 2, but as the tree grows older its top becomes flat instead of pointed. The trunk is upright and straight, making it

valuable for saw logs. The base of the tree, especially when it is growing in a wet area, is swollen and fluted. The silvery to cinnamon red bark varies considerably in thickness and has longitudinal fissures.

In the summer the cypress swamp has a rather forbidding appearance from the State road, as shrubs and vines, including poison ivy, are especially prevalent along the edge where the light comes in. Over much of the area the progress on foot is slow, especially since the meandering streams and marshy areas make many detours necessary unless one comes equipped with outing shoes or boots. In some areas, particularly in the southern part, the trees are thicker on the land; very little cutting has been done and the undergrowth is not so troublesome. The stand looks entirely different when the vegetation is not in leaf. Someday it is hoped that a few trails will be made in the swamp, but it would be desirable to leave the major part of it undisturbed so that it will assume the natural condition of the vast cypress swamps which once covered much of our land. If the lower part of the tidal stream is made accessible in the future, boat trips along the cypress-lined creek, similar to those in some of the famous swamps of the South, may be possible.

Along the watercourses and in the marshy parts of the area, cypress trees produce abundant and characteristic knees (figure 3). These curious structures growing up through the muck and water from the horizontal roots help to make the tree wind-firm in its wet location. The knees are hollow with a layer of wood and thin bark on the outside. The wood is very light in weight but much twisted in structure and therefore very tough. A mass of horizontal roots interconnected with these upright growths help to make a rather firm bracing in the soft site. The

wind-firmness of cypress on marshy sites is shown particularly in times of hurricanes when other trees are blown down and the cypress stands firm. The knees are also supposed to help supply air to the submerged roots. It is interesting that the knees usually develop to a height about equal to the high water level of the area. Visitors are cautioned against cutting or removing any of the cypress as not only is such action a serious legal offense but the injuries made on the roots may permit the entrance into the root system of parasitic organisms. Cypress trees occurring naturally on drier sites or when planted out far from water grow well but do not produce the characteristic knees. It does not reproduce well on the drier sites in competition with other tree species and therefore it has been theorized that the tree is dominant in swamps because it competes there most successfully rather than because it makes the best growth there.



Looking upstream from road No. 506; sign notes dividing line between tidal and nontidal water.

The wood of the bald cypress is especially valuable because it is resistant to deterioration and decay as well as being easily worked. In Calvert County where the Battle Creek swamp is located, cypress has been used for tobacco barns, ship building, and many other purposes such as exterior trim of buildings, doors, blinds and porch material. In recent years cypress wood from the southern stands has been used to an increasing extent for interior finishes. A number of the

the swamp and one of them is now making a more intensive study of the birds nesting there. However, no species characteristic of cypress swamps have been found. The pileated woodpecker is one interesting species noted. The swamp is rather narrow and long and so the birds from the surrounding slopes frequent it. The same situation holds with racoons, opossums, mink and other small animals. Some 7 species of snakes have been recorded, but the water

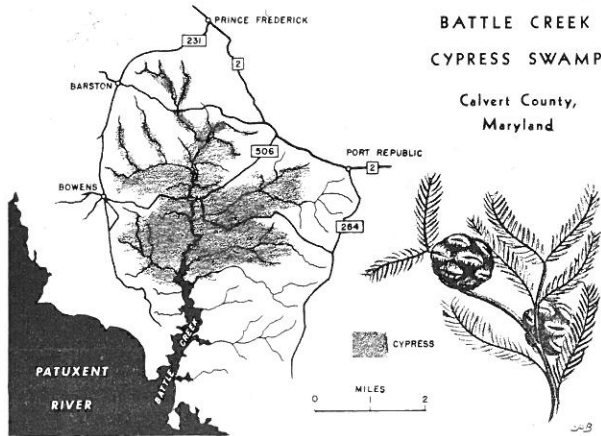


Figure 4. Battle Creek Cypress Swamp.

trees cut from the Battle Creek swamp have been used for long straight piles at Washington and elsewhere. Because of the value of the wood for so many uses it has a high stumpage price. In recent years there has been some heavy cutting in parts of the Battle Creek stand, and there is always the danger through change of ownership or for other reasons that this last nearby forest might be lost.

No extensive studies of the fauna and flora in Battle Creek have been made. Ornithologists have made a number of visits to

moccasin is not among these. The northern copperhead is the only poisonous snake in southern Maryland, and it does not frequent the swamp proper. Spotted turtles are found and down in the lower part of the creek where the water is brackish the well-known Chesapeake diamond back terrapin has been noted.

The only example of a typical southern swamp "critter" found so far in this disjunct cypress swamp is the pinewoods tree frog. The nearest previous locality where this frog has been reported is the Dismal Swamp of Virginia.

The fresh water fish noted include the eastern minnow, tessellated johnny darter, eastern creek chubsucker, eastern blacknose dace and the eastern redbreast dace. It is interesting that the eastern banded killifish largely found in brackish water was rather prevalent in the clear streams of the swamp above the brackish zone.

The annual spring migration of the non-parasitic brook lampreys excites the wonder of visitors to the cypress swamp in March and early April. This species, which is restricted to fresh water, goes through an approximately 5-year cycle; most of its time is spent buried in the mud. In March 1953, for example, the small eel-like creatures were observed spawning in clear view about 10 yards off the road over shallow depressions in the sandy bottoms. The adults, which do not feed after transformation, sway in the current until the eggs are laid and fertilized. They then die, and the young that hatch burrow in the mud of stream bottoms and seemingly disappear until they are mature about 5 years later, when they repeat the cycle.

The most interesting location, as one leaves the swamp downstream, is where the cypress swamp fuses into the brackish marsh of the Battle Creek estuary. Here the fauna and flora change from the fresh water to estuarine. The transition area at the head of the creek is extremely muddy, and on one occasion was observed to be choked with much aquatic vegetation made up of *Potamogeton*, *Elodea*, and eel grass. In this area, it was observed that whenever the tide ebbs, there is a distinct concentration of

fauna made up of many estuarine fishes and myriads of invertebrates. Probably many anadromous species use the lower end of the cypress swamp as a breeding area, and for this reason the cypress swamp's relation to the estuary and its inhabitants is of importance.

The Battle Creek cypress swamp has great scientific and aesthetic value and fully justifies the steps being taken to prevent cutting and general destruction of this unique area. Many garden clubs in Maryland and the District of Columbia and other State and National agencies have manifested great interest in the locality. Several thousand people have visited the area within the last two years, and many scientists and amateur naturalists have visited the swamp. A number of them have initiated project studies in the Battle Creek area. Several months ago the Nature Conservancy, a national organization devoted to the preservation of natural areas, secured a 1-year purchase option on the area. Romeo Mansueti of the Chesapeake Biological Laboratory at Solomons is local Chairman of the Cypress Committee, and G. Flippo Gravatt, of Port Republic, is Representative for Maryland and the District of Columbia for Nature Conservancy. This organization has also recently secured a purchase option on a very unusual growth of hemlock, some 15 miles south of the swamp, and has included this in its overall local purchase project. Information concerning the project or contributions towards raising the \$10,000 needed to purchase the cypress and hemlock should be sent to Nature Conservancy, 4200—22nd Street, N. E., Washington 18, D. C.

