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Natural Areas of the Southeast

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Foreword. The following article on the status of the natural area program in the Southeastern Section (Alabama, Georgia, and Florida) is condensed from a report summarizing the progress of the Section's liaison officer (Laurence C. Walker) to the National Natural Area Committee. Each Section of our Society has such a liaison officer—some Sections have a natural area committee—who conducts the field work for the National Committee. The goal of the Committee, as well as that of cooperating agencies and organizations, is to locate and to have preserved in perpetuity, for purposes of research and education, examples of undisturbed, natural forests representing all the major cover types.

The program in the Southeastern Section (and in parts of the Appalachian, Kentucky-Tennessee, and Gulf States Sections) was stimulated by the survey completed in 1960 by F. H. Eyre under a grant from Resources for the Future. This report was published by the Society of American Foresters, and a limited number of copies are still available. It briefly describes 29 tracts that met natural area specifications as well as 47 others which needed further investigation. Progress in the preservation of these tracts is here reported.

DONALD LYNCH, chairman
SAF Committee on Natural Areas

A NATURAL AREA, as defined by the Society of American Foresters,[1] is a tract of land set aside to preserve permanently in unmodified condition a representative unit of virgin growth of a major forest type. The preservation is primarily for scientific and educational purposes. Timber cutting, grazing, and naval stores activity are precluded and general public use discouraged. In the Southeast, we can only guess at what a "representative unit of virgin growth" is, for comparison can be made only with courthouse records and the memory of old-timers. In fact, as truly virgin stands have not been found for most SAF timber types within the region, areas which in composition and appearance no longer reflect past disturbance by white man are favorably considered. Thus, certain tracts have been suggested as adequately fitting the official description of a natural area.

The Society of American Foresters is not acquiring property for its natural areas system. Rather, in cases of privately owned tracts, it is suggesting that (1) owners retain title and seek elimination or reduction of taxes for the property, based on its being set aside for scientific purposes, or (2) title be transferred to an educational institution or a conservation organization with sufficient endowment to assure payment of necessary annual recurring maintenance costs. In any case, legal means to guarantee perpetuation of the natural condition is essential for inclusion in the system. Tracts located on federal or state lands usually present no ownership problems.

Within the bounds of the Southeastern Section are 12 tracts officially designated Natural Areas. Another five belong in the system, but because of the owners' present reluctance to assure perpetuation, they remain unclassified as such.

Classified Natural Areas

A variety of forest types are represented in Natural Areas. Slash pine (84)[2] is found in the St. Mark's NA, the Osceola NA, and the Blackbeard Island NA. Cabbage palmetto-slash pine (86) occurs in the St. Mark's and Osceola NAs and slash pine-hardwood (85) in the unit on Blackbeard Island. South Florida slash pine (84a) is represented in the Corkscrew Swamp Sanctuary NA and in Sapelo Island No. 2. Long leaf pine (70) occurs in the Osceola and St. Regis NAs; loblolly pine-shortleaf pine (80) in the Piedmont NA; pond pine (98) in the Osceola NA; pondcypress (100) in the Osceola, Corkscrew Swamp Sanctuary, and Okefenokee NAs; baldcypress (101) in the Corkscrew Swamp Sanctuary NA; and sweetbay tupelo-red maple (104) in the Osceola and Okefenokee NAs. Live oak (89) and loblolly pine-hardwood (82) tracts are found in Sapelo Island NAs, and live oak and pine-cypress in the Highlands Hammock State Park. A thousand acres of sawgrass marsh in the Corkscrew Swamp Sanctuary is also set aside.

St. Mark's.—The St. Mark's tract on a National Wildlife Refuge near Newport, in north central Florida, is a level site 3 to 5 feet above sea level, the soil of which is alluvial. The 400 acres of slash pine and cabbage palmetto-slash pine types, however, are only about 25 years of age. Origin is attributed to an especially good seed year. A few old scattered pine trees averaging 12 inches d.b.h. and 40 feet tall remain. Stunted growth may have been due to salt spray or wind effect on these Coastal trees. The cabbage palmetto averages 15 feet tall and 8 inches d.b.h.

Osceola.—The Osceola NA on the National Forest of the same name, near Olustee in northeastern Florida, supports longleaf pine, pond pine, pondcypress, and sweetbay-swamp tupelo-red maple types as well as two slash pine covers. Total area is about 375 acres. The land is level, of alluvial origin, and just a few feet above sea level. The slash pine is the youngest of the forest types represented there, while the pondcypress exceeds 250 years.

Corkscrew Swamp.—The Corkscrew Swamp Sanctuary NA, owned by the National Audubon Society, lies in the Everglades of southern Florida, near

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The author's draft acknowledged more than a score of workers who have assisted in collection of Natural Area data.

[1]Forestry terminology. Soc. Am. For. 3rd ed. 1958.

[2]Cover type numbers given in parentheses are according to Soc. Am. For. Forest cover types of North America. 1954.

Immokalee. In addition to a unique 100-year-old stand of South Florida slash pine, the tract contains over 3,000 acres of pondcypress and 600 acres of baldcypress. The latter average 100 feet tall and 4 to 8 feet in diameter. The cypress is fairly open-grown, though the smaller pondcypresses are notably denser growing than the baldcypress. A saw-grass marsh exceeding a thousand acres is also set aside. Hardwoods intermingled with the principal cover in the swamp include black willow, red maple, persimmon, and water hickory. Saw-palmetto, red maple, bays, and myrtle accompany the open-growing slash pines which average 70 feet tall and range from 6 to 20 inches d.b.h. The level sands of the Corkscrew Swamp site, 15 to 20 feet above sea level, overlie marl or limestone deposits.

Blackbeard.—The Blackbeard Island National Wildlife Refuge stand of slash pine-hardwoods is on a poor site consisting of low sand ridges with alternating sloughs. Geologically, the island is a barrier beach formation off the coast of Georgia. The 100-year-old pines in the 300-acre stand average about 80 feet tall and 24 inches d.b.h. The hardwoods, probably much younger, are about 50 feet tall and 15 inches d.b.h.

Okefenokee.—Okefenokee No. 1, lying within the great running water swamp in southeastern Georgia, contains a virgin forest of pondcypress. The 15,000-acre stand is over 250 years of age (Fig. 1). However, the trees growing on the level peat deposits, 120 feet above sea level, are only 60 feet tall and about 12 inches in diameter. Another virtually untouched extensive tract of timber, though just 60 years old, is nearby in the swamp—sweetbay-swamp tupelo-red maple. This stand of over 2,500 acres comprises Okefenokee No. 2. The property is under the jurisdiction of the Okefenokee Swamp Wildilife Refuge of the U. S. Department of Interior.

Piedmont.—Only a single loblolly pine-shortleaf pine cover type is presently represented; and this is a rather young, 40-year-old stand in the lower Piedmont of Georgia near Macon, on National Wildlife Refuge land. The site is good, the stems of both species exceeding 80 feet in height at 35 years on the rolling alluvial soil. The loblolly pines in this 138-acre tract average 13 inches d.b.h. and the shortleaf pines 11 inches.

Bee Branch.—A most fascinating tract is the Bee Branch NA in the Bankhead National Forest of northern Alabama, recently reclassified from a Scenic Area to assure its perpetuation in an undisturbed condition. Most of the trees in this truly primeval forest exceed 200 years of age and many, no doubt, are over 300 years old. A 10-inch hemlock, a late comer, is more than 100 years old and a 22-inch beech has 90 annual growth rings in its outer 5½ inches. The stand, resting in the moist bottom of a fairly inaccessible gorge, is believed typical of the virgin Southern Appalachian Forest. The soil in the limestone bowl, separated from the plateau above by 100-foot sheer cliffs, is characterized by a well developed mull humus, though horizon differentiation below the rocky, shallow A_1 is rather indistinct. In contrast, the shortleaf pine-Virginia pine (77) stand on the drier plateau adjacent to the gorge is on a friable soil with well-developed deep loamy A and silty clay B horizons underlying a duff-mor humus. No doubt the plateau site has been frequently and severely burned, judging from the charcoal articles found more than a foot below the ground surface. In contrast, the hardwood and hardwood-hemlock cover types in the moist gorge have been well protected from fire and, by virtue of their location and composition, from lightning and biotic disaster. Interestingly, chestnut snags are not present among the old-growth trees in the gorge.

The 128 acres of natural area at Bee Branch are relatively level, but very rocky, and lie 800 to 900 feet above sea level. The yellow-poplar trees probably average about 90 feet tall and 24 inches d.b.h. Hemlocks are about the same height and 18 inches d.b.h. A 150-foot tall yellow-poplar measured 6.6 feet d.b.h. and 85 feet to the first limb (Fig. 2). Basal area for the stand approximates 70 square feet per acre.

FIG. 1.—Pondcypress in the Okefenokee Swamp, typical of the 15,000-acre stand. *U. S. Dept. of Interior photo.*

The plateau surrounding the NA also appears to be virtually untouched by white man. White oaks among the conifers exceed 100 years of age, but large trees are lacking—probably because of fire and the relatively poor site. Here, the shortleaf pine-Virginia pine type is giving way to the Virginia pine-southern red oak type (78), although the Virginia pine—about 40 years old in the openings—is passing out and thereby leaving a mixed oak cover. It is considered unfortunate that the pine-hardwood plateau rim, as well as the gorge, was not included in the recent reclassification from scenic area (USFS U-3) to natural area (USFS U-4). Although scenic areas are excluded from timber cutting and the rim tract lies within a game refuge boundary, pressures nevertheless could be brought to bear for its further development.

Sapelo.—Sapelo Island, off the coast of Georgia, contains two natural areas. One is a 20-acre live oak stand, certain to exceed 200 years of age. The other is 50 acres of loblolly pine-hardwoods with considerable admixture of slash pine about 100 years old. The hardwoods are mostly live oaks, but a dozen or more other species occur, along with sawpalmetto. Site productivity is only fair, the pines averaging about 80 feet tall for 3 merchantable logs, and the hardwoods 50 feet. Diameters average 20 and 24 inches, respectively. One tree meas-

ured was 115 feet tall and the maximum pine d.b.h. appeared to be 28 inches. Basal area ranges from 50 to 80 square feet per acre.

The soil, derived from Coastal Plain barrier beach sediments, is a deep fine sand.

As much of this island has been dedicated for research and entrusted to the Sapelo Island Research Foundation, designation of these tracts as Natural Areas was highly commendable.

St. Regis Tract.—A very desirable longleaf pine tract for natural area classification occurs on St. Regis Paper Company land near Flomaton in South Alabama. The 40-acre stand, on soil derived from Coastal Plain sediments, is well preserved, many trees exceeding 200 years of age, 90 feet tall, and 20 inches d.b.h. It was formerly named Hauss Park, in honor of a one-time president of the company which owned the land, who cherished and personally guarded the stand.

Highlands Hammock State Park.—The Highlands Hammock State Park tract, consisting of 1,600 acres of pine-cypress 50 to 80 years old, and over 200 acres of live oak ranging from 250 to 500 years of age is given NA listing. Some cypress trees have a diameter of 5 feet, but most are 3 to 5 feet d.b.h. and with short stems, 40 to 60 feet tall. These are accompanied by an understory of sweetgum, red maple, and magnolia. The terrain is gently rolling, broken by water courses. Alluvial sandy fills rest on a calcareous base. Nature trails are located within the area which lies on the edge of the Everglades sawgrass morass in South Florida.

Proposed Natural Areas

Other desirable tracts of timber which should be classified as SAF Natural Areas include loblolly pine-shortleaf pine stands in Alabama and Georgia, longleaf pine stands in Florida and Georgia, and shortleaf pine-Virginia pine in Alabama.[3] All are ecologically and historically fascinating.

Camden.—A loblolly pine-shortleaf pine tract, within the city limits of Camden, Ala., has belonged to the present owner for 70 years. As a boy, he says, the stand looked as it does today. That the last half-inch radius of many trees over 3 feet d.b.h. had more than 25 annual growth rings attests to the reliability of this observation. By extrapolation, we ascertained the age of the timber at about 140 years—to approximately the time the area was settled by white men. The stand, on slightly rolling Coastal Plain sediments, probably matured at about age 70. In the last 70 years, there has been but one fire, and this occurred 50 years ago.

The forest must have been picturesque even before the Civil War. A spring-fed swimming pool, constructed of concrete sometime before the hostilities, is used today by children from the nearby community (Fig. 3). Taxes have been increased slightly since 1860, but remain today as they were 50 years ago.

The present stand contains as much as 34 MBM (Scribner) per acre of sawtimber, gross scale, without deduction for the prevalent interior redheart and butt rots. Trees exceed 125 feet tall and have more than 6 merchantable logs. Shortleaf pines average 5 feet shorter than the loblolly. Pine basal area approximates 70 square feet per acre and the understory hardwoods contribute another 30 square feet. As the pines are gradually succumbing, due to breakage and windthrow, the stand is undergoing transition to the loblolly pine-hardwood (82) type and eventually is expected to be characterized by beech-southern magnolia (90). Oaks, hickories, and elm are noticeably absent and pines do not occur in the understory.

[3]For the shortleaf pine-Virginia pine tract, see discussion under Bee Branch above.

FIG. 2.—The Bee Branch Natural Area in northern Alabama lies in a limestone gorge surrounded by sheer cliffs 100 feet high. Yellow-poplar-hemlock and yellow-poplar—white oak—northern red oak are the principal types. *U. S. Forest Service photo.*

FIG. 3.—The center of the loblolly pine—shortleaf pine Camden forest.

Even under the pines, a mull humus layer covers the soil of well developed horizons. It is a well drained site except along stream courses where six inches of alluvium has washed from nearby fields to hide black muck.

Except for the Japanese honeysuckle which has escaped to invade this woods, the stand is superbly suited for Natural Area designation. It is hoped the owner will see fit to assure its perpetuity.

Edgehill. — Another loblolly pine-shortleaf pine forest, about 130 years old, lies in the Valley and Ridge province of northwest Georgia. Trees average 20 inches d.b.h. and 85 to 90 feet tall for loblolly and shortleaf pines, respectively.

The forest is believed to have originated following a disastrous fire at the time the Cherokee Indians, who occupied the area in great numbers, were forceably moved to Oklahoma. It is conceivable that the woods were burned by white soldiers during the roundup, or by Indians in retaliation and to confuse the troops. The pines, including a few longleaf and Sonderegger, then seeded-in. Less severe fires occurred until state protection was available in the early 1930's. Hence, most hardwoods (blackjack oak, black oak, northern red oak, hickories, and yellow-poplar, the latter except in the coves) are less than 30 years old. Severe wind and ice storms occurred in 1950 and 1960, respectively, after which about 200 board feet per acre of down timber was salvaged to avoid insect infestation of residual trees. The use of insecticides was prohibited because the forest is regularly used for Audubon expeditions. Loss of the conifers is expediting transition to an oak-hickory forest type.

The rolling cherty site is relatively xeric, except in the coves. Elevation ranges from 500 to 750 feet.

Only on this 60-acre NA, which includes 10 acres of virgin yellow-poplar (57), are serious scientific investigations under way. While the current value of the ecological studies is considerable, their real worth will be apparent in a generation or two when another student compares the vegetation then and now.

This stand, at the city limits of Rome, Ga., could be lost due to (1) the current tax re-evaluation, which may make it too costly to retain; (2) pressures for real estate development; and (3) highway construction. The land is the owner's security. He will sell only as a last resort, having cherished this little piece of wilderness as his home and sculpture studio for several decades. He is presently willing to sell it to a conservation group which would guarantee its safety. Nature Conservancy, in a formal resolution, has commended the owner for Edgehill's continuing preservation.

Lewis.—Longleaf pine forests needing Natural Area classification include the Lewis Tract in West Florida. This 50-acre area of fine, 150-year-old trees is a level Coastal Plain site 10 to 45 feet above sea level. Basal area exceeds 150 square feet per acre and height averages 90 feet. Individual stems exceed 18 inches d.b.h. and average 15 inches. Incidentally, a former stand of the same species evidently occupied the site: a single tree several hundred years old still stands.

Millpond.—On the Millpond Plantation in south Georgia is a 90-acre park-like (50 to 80 sq. ft. per acre basal area) stand of longleaf pine over 250 years old. There are about 50 sawlog size trees per acre, but heart rot probably has culled one-half of the 30 MBM (Scribner) volume. Rotten cores also prohibit accurate age determination: one 32-inch diameter blow-down had over 225 annual rings to the decayed center of its stump, only 9 inches from the bark. Growth of the outer inch of radius required 40 years. Tree height averages 80 feet and d.b.h. 20 inches. As this is a fire-climax type—periodically prescribed burned for wildlife cover improvement—the floor is a grass rough, scrub oaks are kept in check, and some young longleaf pines are found.

The soil, derived from Coastal Plain marine deposits, is a 3-inch thick loamy sand over a sandy loam. Below 15 inches is a reddish-yellow sandy clay loam. Site index appears to be about 60 for this rolling upland.

The stand will certainly be saved for the lifetime of the owner, a Boston attorney; but its permanence is not legally secured.

Summary

Within the bounds of the Southeastern Section, fourteen SAF cover types are designated as Natural Areas. Two additional types are recommended for Natural Area classification and at least three others require further study prior to formal recommendation. Ten areas have been permanently set aside and, hopefully, five others will be preserved. Twelve tracts yet require evaluation.

It is hoped that other stands possibly satisfying the SAF Natural Area definition will be brought to the writer's attention and that foresters will take advantage of the availability of these tracts for thoughtful study and reflection. Information on the Natural Areas situation in this Section is available from the author, upon request, in tabulated form for ready reference.

Annual Meeting

Registration Fee Waived

Students, Ladies, Guests

Forestry students, ladies, and nonmember guests on the program are not required to pay a registration fee at the 1963 Annual Meeting. Although the fee is waived, they will be asked to register upon arrival. They will thus be eligible to attend all open SAF sessions and Division meetings.