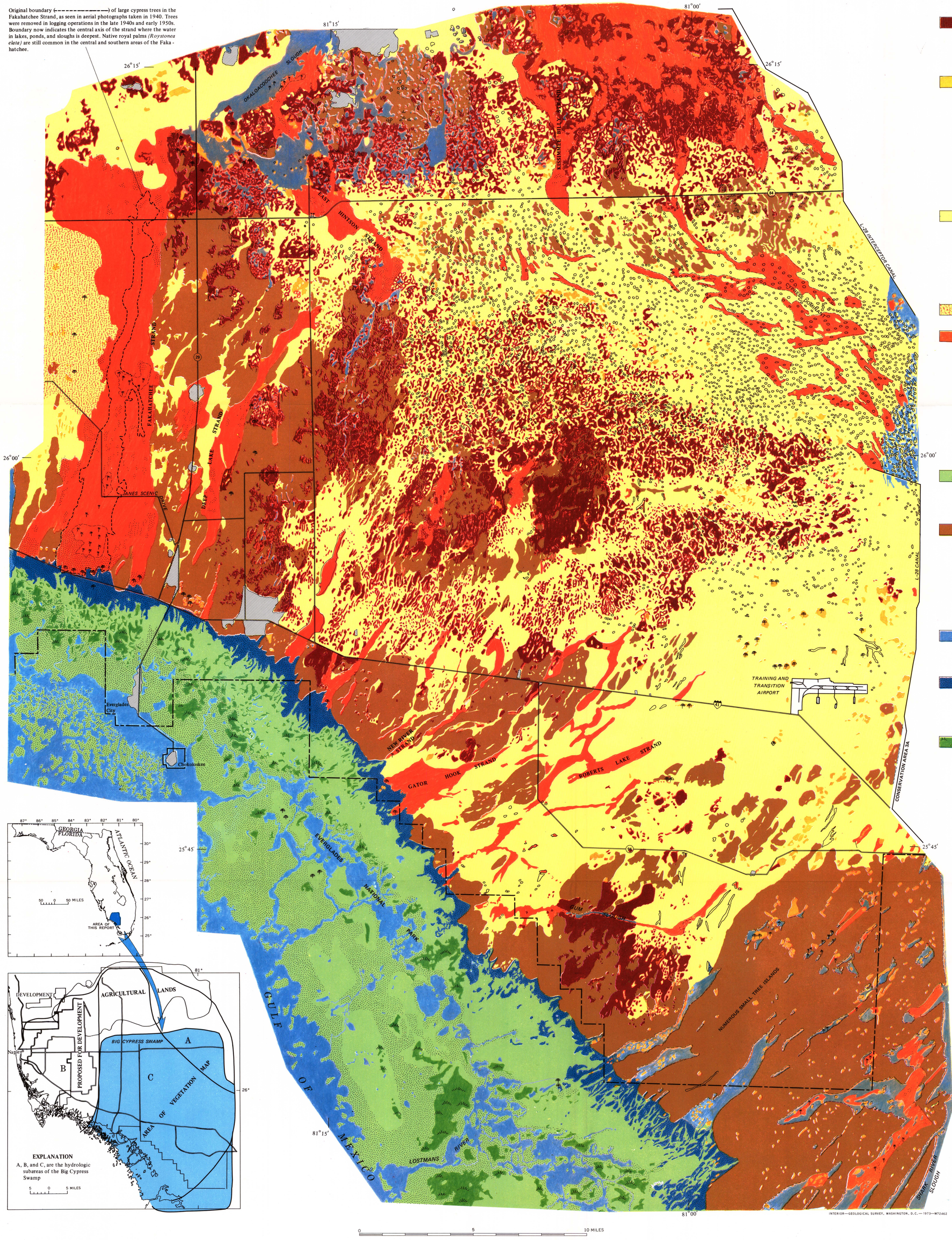
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

Prepared in cooperation with the
FLORIDA DEPARTMENT OF NATURAL RESOURCES

HYDROLOGIC INVESTIGATIONS
ATLAS HA-492

Original boundary (– – – – – – – –) of large cypress trees in the Fakahatchee Strand, as seen in aerial photographs taken in 1940. Trees were removed in logging operations in the late 1940s and early 1950s. Boundary now indicates the central axis of the strand where the water in lakes, ponds, and sloughs is deepest. Native royal palms *(Roystonea elata)* are still common in the central and southern areas of the Fakahatchee.



EXPLANATION

PINE FOREST: Open forest of pine *(Pinus elliottii)*, cabbage palm *(Sabal palmetto)*, saw palmetto *(Serenoa repens)*, and scattered hardwood shrubs and trees. Grasses are usually the dominant ground cover. Common genera include beardgrass *(Andropogon)*, three awn-grass *(Aristida)*, and panic-grass *(Panicum)*. Sedges, rushes, and composites may also be present in the ground cover. Land several inches to several feet above surrounding cypress land. A sub-climax association maintained by fire, which restricts the spread and reduces the density of hardwood trees.

HAMMOCK FOREST: Dense forests of hardwood trees, palms, shrubs, ferns and epiphytes that occur on land slightly higher than that of surrounding marshes, prairies, or cypress forest and that often stand out on the horizon as "tree islands." Hammock forest often represents a climax community developed in the absence of fire. Protection from fire occurs in areas surrounded by deep water or in areas of dense vegetation that retain high humidity and soil moisture. In the northern part of the Big Cypress, temperate-zone trees, such as red maple *(Acer rubrum)* and laurel oak *(Quercus laurifolia)*, predominate in lower areas and live oak *(Q. virginiana)* and cabbage palm in higher areas. To the south, broad-leaved tropical trees and shrubs, such as strangler fig *(Ficus aurea)*, wild tamarind *(Lysiloma latisiliqua)*, pigeon plum *(Coccoloba diversifolia)*, gumbo limbo *(Bursera simaruba)*, poison wood *(Metopium toxiferum)*, red bay *(Persea borbonia)*, and cocoplum *(Chrysobalanus icaco)* become dominant, where they occur on numerous small tree islands. These islands are most abundant southeast of a line that extends from the Training and Transition Airport southwestward to Lostmans River. Near the coast, red mangrove *(Rhizophora mangle)* and cabbage palm are usually abundant.

CYPRESS FOREST: Open forest of small cypress trees *(Taxodium distichum)* and a scattered, sparse growth of herbaceous plants, such as sawgrass *(Cladium jamaicensis)* or beak rushes *(Rhynchospora)*, growing on a thin layer of marl soil or sand over limestone. Cypress domes and strands, with larger trees, occur over much of the forest. Domes are circular or egg-shaped features that appear dome shaped in profile on the horizon. The trees are tallest in the center and become successively shorter toward the borders. Strands are elongated areas of large trees that follow drainage depressions. Both water and soil are deeper in the domes and strands than in the surrounding open forest. Shrubs and small swamp trees, such as wax myrtle *(Myrica cerifera)*, cocoplum, and pond apple *(Annona glabra)*, are commonly understory species within the domes and strands.

MIXED PINE AND CYPRESS FOREST: Open forest of pine, cypress, and cabbage palm with an understory of mixed herbaceous plants, shrubs, and scattered hardwood trees. Scattered prairies.

MIXED SWAMP FOREST: Dense forests of trees, shrubs, vines, ferns, and epiphytes that usually occur as elongated strands that follow low drainage areas. Elevation of land within a forest is variable and ranges from deep-water areas that are inundated during most of the year to higher areas that are seldom inundated. Most land is seasonally flooded for months. Forest is usually a mixture of many shrub and tree species. Cabbage palm, red maple, wax myrtle, cocoplum, sweet bay *(Magnolia virginiana)*, and red bay are widely distributed. Cypress, willow *(Salix caroliniana)*, pop ash *(Fraxinus caroliniana)*, and pond apple tend to be more common in deeper water. Hammock vegetation, such as laurel oak, dahoon *(Ilex cassine)*, wild coffee *(Psychotria undata)*, myrsine *(Myrsine guianensis)*, and occasionally live oak and pine grow on the higher land. Although the forest is usually a mixture of many trees, small areas sometimes predominate in one species, such as willows in burned areas, and pop ash, pond apple, or cypress in deep water. Large cypress trees dominated much of the forests prior to logging, but now virtually all the large trees have been removed. Cabbage palm predominates at the seaward end of some strands. Stippled areas within this code color on the map represent patches of dense broad-leaved vegetation and cabbage palms.

COASTAL FOREST: Predominantly red *(Rhizophora mangle)*, black *(Avicennia germinans)*, and white mangroves *(Laguncularia racemosa)* and buttonwood *(Conocarpus erecta)*, but often with fresh-water swamp trees, particularly in landward regions along creeks. Scattered salt-water marshes and prairies interspersed in the forest. Hammock vegetation on elevated areas, such as shell mounds or creek banks. Stippled areas within this code color on the map correspond to dense forest.

PRAIRIES: Associations of mixed grasses, sedges, and other herbaceous plants, with few trees. Prairies may be seasonally inundated for months (wet prairies) or seldom inundated (dry prairies), depending on elevation. Many prairies are intermediate between these two types. Common species in wet prairies include maidencane *(Panicum hemitomon)*, blackhead rush *(Schoenus nigricans)*, star dichromena *(Dichromena colorata)*, muhly *(Muhlenbergia capillaris)*, water dropwort *(Oxypolis filiformis)*, ribbon lily *(Crinum americanum)*, hempvine *(Mikania batatifolia)*, the low shrub stillingia *(Stillingia* sp.*)*, and scattered marsh vegetation, particularly sawgrass. Common species in dry prairies include saw palmetto and some of the grasses and sedges found in the pine forest. Large areas of wet prairies exist south of U.S. 41, where they merge, sometimes almost imperceptibly in transition areas, with marshes. Dry prairies are more common in the northwest part of the map. Some prairies, particularly those west of State road 29, have been farmed.

INLAND MARSHES, SLOUGHS, AND PONDS: Areas dominated by such forms as cattail *(Typha* sp.*)*, dense sawgrass, arrowhead *(Sagittaria lancifolia)*, pickerelweed *(Pontederia lanceolata)*, fire flag *(Thalia geniculata)*, water rush *(Rhynchospora inundata)*, spike rush *(Eleocharis cellulosa)*, and bladderwort *(Utricularia* sp.*)*. Vegetation may be dense or sparse. Water usually several inches deeper than surrounding prairies.

COASTAL MARSHES: Area near the inland edge of the coastal forest, usually containing fresh water except after storm tides or during droughts. Common species include spike rush, cattail, cordgrass *(Spartina spartinae)*, sawgrass, sea purslane *(Sesuvium* sp.*)*, small scattered red mangrove, cabbage palm, and salt-rush *(Juncus roemerianus)*. Cordgrass is abundant and often dominant northwest of Gator Hook Strand; it is much less abundant in the marsh southeast of this strand, where it is replaced mainly by spike rush or sawgrass.

SALT WATER PRAIRIES OR MARSHES: Mostly treeless except for scattered mangroves. Common species include: Saltgrass *(Distichlis spicata)*, cordgrass, salt-rush, saltwort *(Batis maritima)*, and woody glasswort *(Salicornia virginica)*.

SYMBOLS

CYPRESS STRANDS

CYPRESS DOMES

SAW PALMETTO

WILLOW

CABBAGE PALM

AGRICULTURE, URBAN OR DISTURBED LAND

INDEFINITE VEGETATIVE BOUNDARY

EVERGLADES NATIONAL PARK BOUNDARY

METHODS AND MATERIALS

The map was made with the aid of aerial photography in conjunction with ground surveys. The basic photography used was infrared black and white taken in December 1969 at 15,000 feet (1:30,000 scale). This photography was particularly useful in delineating areas of different water depths, which, in turn, facilitated the separation of major plant associations such as deep water sloughs and marshes from relatively drier prairies. Higher elevation photography (1971) both black and white (24,000 feet) and color infrared (29,000 feet) was used to delineate large vegetal features, such as "strands" or coastal forests.

Ground surveys were made in 1971, primarily by helicopter but also on foot and by airboat. Because surveys were made randomly during the year, seasonal features of the vegetation were not considered. Drs. Frank Craighead and Taylor Alexander of the University of Miami and Mr. George Avery of Fairchild Tropical Garden participated in one or more of the ground surveys and were helpful with suggestions for the map and field identification.

The vegetal associations or types used in the map correspond most closely to the major types used by Davis (The Natural Features of Southern Florida, 1943, Florida Geological Survey, p. 147–153). The scientific names of the plants are taken from Long and Lakela (A flora of tropical Florida, 1971, University of Miami Press).

This map was prepared by use of nonstandard cartographic techniques.

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1973—W72462

VEGETATION MAP OF SOUTHERN PARTS OF SUBAREAS A AND C, BIG CYPRESS SWAMP, FLORIDA

By
Benjamin F. McPherson

1973

For sale by U. S. Geological Survey, price 75 cents