

LAND USE IN THE BIG CYPRESS AREA.

SOUTHERN FLORIDA

By
J.T. Armbruster
Prepared by
U.S. GEOLOGICAL SURVEY
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FLORIDA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF INTERIOR RESOURCES
BUREAU OF GEOLOGY

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INTRODUCTION

The Big Cypress is a loosely defined but recognized physiographic province in southern Florida (Davis, 1943, Fig. 1) southwest of Lake Okeechobee. It is a hydrologic unit of 2,450 square miles of flat swampy area that merges into a coastal-marsh and estuarine environment. The land surface slopes gently to the south and is characterized by an intricate mosaic of marshes and lowland forests. (U.S. Department of Interior, 1969). The Big Cypress includes most of Collier County, and small parts of Broward, Dade, Hendry, and Monroe Counties.

The Big Cypress has been divided by Klein and others (1970, fig. 1) into subareas A, B, and C, as shown on the map. The subareas have reasonably distinct internal drainage determined largely by topographic configuration and man made drainage. These man made water-control measures generally establish patterns for urbanization. Subarea A comprises 450 square miles, about one fifth the total area of the Big Cypress. It lies northeast of a low ridge, and drains southeastward, through a 7.1-mile gap in Levee 28, into Conservation Area 3A of the Central and Southern Florida Flood Control District. Southeastward flow is assured by the Levee 28 tieback levee and canal as well as by the Levee 28 interceptor canal. This levee system along the western boundary of Conservation Area 3A, was completed during the mid-1960's.

Subarea B includes 550 square miles at the west edge of the watershed. It is characterized by an extensive system of canals that drain southwestward and westward along the Gulf Coast. Residential development has accompanied the completion of several phases of this drainage network.

Subarea C occupies 1,450 square miles in the central part of the Big Cypress and drains southward naturally toward the Everglades National Park. At the west edge, drainage is aided by the Barron River and Turner River Canals (Klein, 1970).

Expanded land development in southern Florida usually begins with the construction of canals to drain swampy lands and to assure protection from high water during the rainy season (Klein, 1970). An area such as the Big Cypress, almost entirely without water-control measures are begun. Thus, a description of the canal network and drainage is important in any discussion of land use because water, a principal resource of the Big Cypress, influences the pattern of land development.

HISTORY OF DEVELOPMENT

Development of the Big Cypress started in 1926 with the building of the Barron River Canal. It continued in 1928 with the excavation of the Tamiami Canal. The canals were the sources of fill for State Road 29 and U.S. Highway 41, respectively. In all, 49 bridges distribute flow to the west part of Everglades National Park along the 37-mile reach of the Tamiami Canal between 40-mile Bend and State Road 29. The Turner River Canal was completed during the late 1950's and served as the source of fill for State Road 840A. The Turner River and Barron River Canals, constitute the only drainage facilities in all of subarea C. The Everglades Parkway, (commonly called Alligator Alley) completed in 1967, runs westward from the Fort Lauderdale area to Naples. Numerous bridges along the parkway permit flow of water southward from the canal immediately north of the road.

Initially, land use along most of these canals was primarily agricultural. Later, small residential areas appeared. The most significant area of development has been in subarea B. Residential land use is expected to increase substantially in that area in the near future.

RESIDENTIAL AND PROPOSED
RESIDENTIAL DEVELOPMENT

The rapid population influx to the Big Cypress area has resulted in a sharp increase in the demand for residential housing. The population of Collier County, which includes more than Big Cypress, increased from almost 16,000 to slightly more than 38,000 in the last decade. The population in the vicinity of Naples, the only major urban sector in the Big Cypress, increased from about 9,000 in 1960 to almost 27,000 in 1970. The rapid increase in the number of retirement communities in Florida is expected to accelerate the growth of this area. Areas on the map shown as residential include all urban, suburban, small communities (incorporated and unincorporated), and industrial areas that could be delineated from all photographs. Where interpretation was questionable the areas involved were checked from a helicopter or automobile. Although most of the city of Naples is immediately outside the Big Cypress, suburban expansion has moved east from Naples into subarea B. Water in the west part of the watershed recharges the shallow aquifer that is the source of water for the city of Naples and the Golden Gate Estates (Freiberger, 1972).

Land development for housing in subarea B began in 1960's in the 188-square-mile Golden Gate Estates, east of Naples. Drainage canals, notably the Golden Gate Canal and the Cocohatchee River Canal, were dug to lower the water levels in the west part of the Estates. Before the canals were built, most of that area was inundated each year during the rainy season. Only one tract significant in size, the unincorporated town of Golden Gate, has been urbanized in the west part of the Estates. Residential construction is underway, however, in several other parts.

The Fakah Union Canal system, begun in 1968 and near completion in 1971, was constructed to lower water levels in the south part of Golden Gate Estates. Additional secondary canals may be needed in this region as residential construction proceeds, to further assure protection of these lands against high water levels. Places where canal networks have been completed and those already proposed or planned for development indicate that urbanization can be expected over a rather extensive part of subarea B in the near future.

The Isles of Capri and Marco Island, south of Naples, are predominantly residential, and both have experienced growth in population in recent years. Most of the expected development will take place on land that will be formed by filling in coastal marshlands.

The predominantly residential town of Immokalee is in the northwest part of subarea C in north Collier County. This unincorporated community is one of the centers of agricultural activity of the county and of southwest Florida. Immokalee and the surrounding area have grown moderately in the past decade. Future growth is expected to stem principally from agricultural activities. No large areas of residential development are expected in the vicinity of Immokalee from an examination of aerial photographs or from limited field checking.

Everglades City, which is incorporated, and Chokoloskee, which is unincorporated, are about 35 miles southeast of Naples, at the terminus of State Road 29. Both communities are predominantly residential. Chokoloskee, an island, is connected to the mainland at Everglades City by a causeway. The island, in Everglades National Park, is considered a "hole in the doughnut." The expression "hole in the doughnut" refers to privately owned land surrounded by publicly owned land. The total population of the two towns is about one thousand.

Two small tracts in the vicinity of Ochlocknee, several miles northeast of Everglades City and adjacent to U.S. Highway 41, are proposed for residential development. The remainder of subarea C shows no signs of planned residential construction. Other minor residential tracts within the Big Cypress are scattered; they include the Indian community in the Big Cypress Federal Seminole Indian Reservation in subarea A.

Of the two land-use categories that have been discussed thus far, areas already developed for residential use comprise 25 square miles, about 1 percent, and areas depicted as proposed for residential development make up 180 square miles, about 7 percent, of the total land area of the Big Cypress.

Water supplies for Naples, East Naples, Immokalee, and Golden Gate are obtained near each community and are adequate to meet short-term future demands. In view of the expected residential expansion eastward from Naples, further gulf coastal urbanization, and the urbanization of the large interior tracts, future water-supply sources will probably be established in the interior of the Big Cypress. Early establishment of water conservation would insure protection of vital water resources against overdrainage and pollution. Hydrologic data not presented in this report indicate that water resources in the interior are adequate to serve the future demands of the western Big Cypress area (McCoy, 1972).

Water supplies for such offshore developments as Marco Island or Isles of Capri are obtained on the mainland near U.S. Highway 41, 6 to 8 miles to the north. Any accelerated growth near these communities may necessitate establishment of a new source of water north of U.S. Highway 41. Everglades City presently is served by wells, which in the future may need to be supplemented from another source.

AGRICULTURAL LAND USE

The areas designated as agricultural lands on the map, probably do not include all the acreage considered as farmland. The map, instead, shows those tracts that were distinguishable as agricultural lands from the aerial photographs by such features as fence lines, cultivated fields, and other similar and recognizable features. The total area depicted as agricultural land in this report is about 200 square miles, or about 8 percent of the Big Cypress. The agricultural areas within the Indian Reservation and the Sunniland oil field are included.

Much of the north part of the Big Cypress is used for agricultural purposes. The total acreage producing crops has not changed much in the past 10 years. However, the income derived from products raised there has increased markedly in that time. Many tracts are worked for a few years, then converted to pasture. These tracts, for this report, are considered as agricultural.

Several other areas of significant agricultural activity are shown near Naples and along parts of U.S. Highway 41 and State Road 29. The tracts range in size from a few acres to several thousand acres.

The two main agricultural activities in the Big Cypress are truck farming and cattle production. The major crops are peppers, tomatoes, cucumbers, and watermelons. Trends seem to indicate that in the near future additional land will be utilized for citrus production and cattle raising (oral commun., Don Lander, Collier County Agricultural Agent). To maintain the present production and meet the increasing demand, additional farmland would be needed. The additional land would have to be cleared and drained. In many places water is controlled by diking fields and pumping excess water from the diked enclosure. During the dry season, irrigation water is pumped from wells penetrating the shallow aquifer. Wells range in depth from about 30 feet to more than 125 feet.

PARKS AND RESERVATIONS

The northwest part of the Everglades National Park is within the Big Cypress. This part of the park includes a rather large segment of shallow estuaries vital to its ecosystem and to the ecosystem of subarea C. Little development of subarea C has occurred and little further development is expected. In 1966, the developers of Golden Gate Estates acquired a 105-square-mile tract of land immediately west of State Road 29 and south of the Everglades Parkway. It includes all of the Fakahatchee Strand which was found to be of unique and national significance as a natural resource by the National Park Service. The Fakahatchee Strand is designated as a Registered National Landmark and is being considered for acquisition as a State Park. The Strand has not been developed.

Collier Seminole State Park lies within the Big Cypress. About 100,000 persons visit the Park annually. Part of the National Audubon Society Bird Rookery, commonly called Corkscrew Sanctuary, is also inside the Big Cypress. The National Audubon Society has recently acquired another tract several miles south of Naples. The preserve is now called Rookery Bay Sanctuary.

Nearly all the Big Cypress Federal Seminole Indian Reservation and part of the Florida State Indian Reservation lie within subarea A. The Big Cypress Reservation is considered the Seminole Indian's home. The Florida State Indian Reservation was established as a home for the Miccosukee Tribe. Many of the Miccosukees have settled among the Seminoles, and many live in small villages along U.S. Highway 41.

Oil was discovered near Sunniland in 1943. The discovery stimulated additional drilling, and a producing oil field covering several square miles now exists in the vicinity of Sunniland. One other producing oil well was drilled several miles southeast of Lake Trafford. Additional drilling in that area is not expected (Oral commun., W.R. Oglesby, Florida Geol. Survey).

A 39-square-mile tract owned by the Dade County Port Authority, intended for a commercial jetport, has received considerable national attention. At present, one runway is operational for training purposes. A recent agreement between the U.S. Departments of Interior and Transportation, the State of Florida, and Dade County has apparently reduced pressures for further land development at the jetport site and the east part of subarea C, at least temporarily (Klein, 1970).

UNDEVELOPED AREAS

About 84 percent of the Big Cypress is undeveloped. This land is characterized by numerous strands and sloughs. It is best described as an intricate mosaic of marsh and lowland forest types - a wilderness of sloughs, tree islands, and bay and cypress heads.

Large tracts are being considered for government purchase to insure protection of these unique areas. The areas are unique, in part, because no other area in south Florida contains the large cypress strands found there. Other plants, for example several species of orchids, are found exclusively in the Big Cypress.

SUMMARY AND CONCLUSIONS

Growth is extensive in and around the Big Cypress watershed. The population of subarea B is increasing rapidly. Consequently, considerable pressure to develop land for residential and agricultural use is being felt. Subarea B has been changed in recent years by excavation of canals to drain land for development. Alteration of runoff rates and drainage patterns affect the ecosystem of the area. Proper management of water resources, however, can minimize adverse effects.

Except for the undeveloped areas, the land in subarea A is used almost entirely for farming and cattle production. There is no evidence that land-use patterns in subarea A will change in the near future. Land in the north part of subarea C is utilized primarily for agricultural activities. The south part of subarea C, including the proposed jetport site, is virtually undeveloped and is not presently subject to pressures for development.

In conclusion, land use in the Big Cypress plays a key role in: 1) the environment and ecosystem of the northwest part of Everglades National Park; 2) the future water availability for the rapidly expanding Gulf Coast communities; 3) the unique ecosystem in the Big Cypress; and 4) the marine resources of dependent estuaries.

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