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Preface

Everglades National Park is on the edge in so many senses. The park is at the very edge of the North American continent. The park is on the edge of two major metropolitan areas: Miami/Dade County on the east and Naples and surrounding communities on the west. Commercial and residential development affects the park in many ways. More than anything, the Everglades is on the edge because it is perennially threatened. The water it formerly received as surface flow now come to it only when the demands of agriculture and urban users have been satisfied. The fate of what remains of the Everglades ecosystem is uncertain and will require close cooperation with a host of land and water managers outside park boundaries. In a broader sense, Everglades National Park hovers near the edge of the conventional definition of a wilderness. It is a wilderness cloven in two by a motor road and visited by tens of thousands of motorboats annually. Nonetheless, the visitor who ventures off the road soon finds herself in a veritable wilderness—a strange and wonderful natural world like no other in the United States.

This history assembles in one document, information about the park and its surroundings from many sources, mostly archival. Dozens of books have been written on the Everglades, and many of them touch on aspects of the park’s history. This is the first work to focus on the totality of the park’s past, and it relies on a number of sources not consulted by previous researchers. In particular, I present much new information on the 20-year campaign to authorize and then establish the park. My assumption is that many readers will consult this volume to answer specific questions on fairly narrow topics, rather than reading it through. Anticipating this sort of use, I have prepared a comprehensive index.

My history begins with a brief summary of the Everglades before the organization of a concerted campaign to establish a national park. Chapters 3 through 5 describe that campaign, the park’s establishment, and its dedication. Land acquisition and the park’s development for visitors are addressed in chapters 6 and 7. The next two chapters tell the story of the Central and Southern Florida Flood Control Project and its wide-ranging effects through 1990. Water is the lifeblood of Everglades National Park, and park operations can be understood only in the context of the broader South Florida water situation. Chapters 10 through 27 deal with the various aspects of park operations. Finally, the last chapter addresses water issues after 1990 and the development of the Comprehensive Everglades Restoration Plan (CERP). The progress of the CERP will largely determine the park’s future.

I have worked to make a complex story—involving hydrology, conservation biology, agriculture, urban development, politics, and diverse local
communities—understandable. Many topics by necessity are treated in summary fashion; I have attempted to direct readers to sources of additional information.

The sheer number of individuals and institutional players in the Everglades drama is daunting. Probably no region on earth has spawned more commissions, task forces, committees, working groups, advisory boards, coalitions, and the like. I hope that I have been somewhat successful in guiding the reader through this maze of organizations and that the capsule biographies in appendix F will be helpful.

If knowledge of the park’s past in any way helps managers tackle the challenges of Everglades restoration going forward, I will have succeeded with this work.

Fig PR-1. Park entrance signs through the years
Acknowledgements

This history was prepared under the cooperative agreement between the National Park Service and the Organization of American Historians. The Southeast Regional Office of the NPS accepted the final manuscript of the history in summer 2014 and may yet publish it in some form. While awaiting that event, I have opted to web publish the history.

The agreements technical representative for the project was Bethany Serafine, historian in the NPS Southeast Regional Office. The original OAH project manager was Susan Ferrentinos, OAH public history manager. Aidan Smith took over as OAH project manager in 2012. The park’s project manager was Melissa Memory, chief of cultural resources at Everglades until the summer of 2013, when she became superintendent at Fort Pulaski National Monument. Melissa largely delegated the day-to-day coordination of the project to Nancy Russell, at that time curator of the South Florida Collections Management Center.

I cannot begin to express the extent of my indebtedness to dozens of Everglades National Park staff members who helped me complete this history. Dan Kimball, superintendent of Everglades and Dry Tortugas National Parks from before the project’s inception until March 2014, recognized the importance of the administrative history. He gave freely of his time in an interview, provided me with introductions, and conveyed his support of the project to everyone in the park.

Nancy Russell has no superior in her dedication to the history of the Everglades, her management of the collections center, and her enthusiasm for this history. For four and one-half years, we were in contact almost daily, and Nancy has tracked down the most obscure documents, answered the most bizarre questions, and helped me keep up my motivation. On my ten research trips to the park, the collections center staff—Bonnie Ciolino, Jennifer Stafford, Siobhan Miller, Aaron Seltzer, Jenna Edwards, Dianely Martin, Adele Peña, Lynn Moulton, Meg Eastwood, Amanda Gonzalez, and Cheryl Price—have been uniformly helpful and a pleasure to share workspaces and lunch tables with.

I am grateful to all the current and former park staff members who agreed to be interviewed; they are listed in the bibliography. In addition, park staff members have been generous in responding to my telephoned and emailed questions; these include Fred Herling, Paul O’Dell, Alan Scott, Sonny Bass, Skip Snow, and Brien Culhane. Several current and former staff members also commented on drafts of the history. I want to thank them all: Nancy Russell, Melissa Memory, Skip Snow, David Rudnick, Jeff Kline, Mike Savage, Mike Jester, Bob Showler, Jason Osborne, Alysson Gantt,
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Individuals at other NPS locations were very helpful. Abel Ramos in the NPS Technical Information Center sent me digital copies of drawings and documents. Richard Vernon at the NPS Southeast Archeology Center guided me through the center’s holdings on Everglades, and center archeologist Margo Schwadron patiently answered my telephoned questions. John Brucksche of the NPS Harpers Ferry Center helped me find items that in the NPS history collection. Jason Lautenbacher, NPS’s national records manager, arranged for me to consult retired NPS files at the Federal Records Center in Suitland, Maryland.

Thanks are due to the archivists and librarians at all of the nonNPS repositories I have visited for this project. These include R. Boyd Murphree, formerly at the Florida State Archives; John R. Nemmers, Florence Turcotte, and James G. Cusick at the University of Florida Library; and John Shipley at the Miami-Dade Public Library. A number of archivists at the National Archives and Records Administration facilities in College Park, Maryland, and Philadelphia provided valuable assistance. Also helpful were the archivists at the University of Miami Special Collections and the Conservation Collection at the Denver Public Library.

I am hugely in debt to my wife, Madeline Baum. She has prepared 22 maps and site plans for this history, which should prove a boon to readers. Further, she has patiently dealt with all of my computer-related issues and supported me through four and one-half years of effort. The task was so much easier and more pleasant with her help.

All of the above-mentioned individuals and dozens of others contributed greatly to this complex project. I hope they will be pleased with the resulting history. Any errors of fact or interpretation in the document are mine alone.
## Abbreviations and Acronyms Used in Footnotes

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<td>Bureau of Indian Affairs</td>
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Chapter 1: The Everglades to the 1920s

Introduction

The Everglades is a vast wetland, 40 to 50 miles wide and 100 miles long. Prior to the twentieth century, the Everglades occupied most of the Florida peninsula south of Lake Okeechobee. Originally about 4,000 square miles in extent, the Everglades included extensive sawgrass marshes dotted with tree islands, wet prairies, sloughs, ponds, rivers, and creeks. Since the 1880s, the Everglades has been drained by canals, compartmentalized behind levees, and partially transformed by agricultural and urban development. Although water depths and flows have been dramatically altered and its spatial extent reduced, the Everglades today remains the only subtropical ecosystem in the United States and one of the most extensive wetland systems in the world. Everglades National Park embraces about one-fourth of the original Everglades plus some ecologically distinct adjacent areas. These adjacent areas include slightly elevated uplands, coastal mangrove forests, and bays, notably Florida Bay. Everglades National Park has been recognized as a World Heritage Site, an International Biosphere Reserve, and a Wetland of International Importance. In this work, the term Everglades or Everglades Basin will be reserved for the wetland ecosystem (past and present) running between the slightly higher ground to the east and west. The term South Florida will be used for the broader area running from the Kississimee River Valley to the toe of the peninsula.

Early in the twentieth century, a magazine article noted of the Everglades that “the region is not exactly land, and it is not exactly water.” The presence of water covering the land to varying depths through all or a major portion of the year is the defining feature of the Everglades. The water comes from rainfall and from surface flow. The surface flow, or sheet flow, originates to the north in the headwaters of the Kissimmee River and drains into Lake Okeechobee. From the lake, water moves over a landscape (now largely compartmentalized) with a nearly imperceptible slope to the south and southwest (figure 8-1, Central & Southern Florida Flood Control Plan). Rainfall in the area is not evenly spread during the year, but comes mostly between May

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1 Much ink has been spilled on the question of whether Everglades is a singular or plural noun. Marjory Stoneman Douglas famously opted for the plural. “There are no other Everglades in the world,” is the opening of her epic 1947 work *The Everglades: River of Grass*. Although Douglas more than anyone else drew the public’s attention to the region, her plural construction did not catch on. Like other writers today, I will use the singular.


and October. Sometimes, during hurricanes, a foot of rain can come in a day. Rainfall can also vary substantially from year to year. The watery world of the Everglades lies at the southern extremity of North America’s temperate zone, but is close to tropical islands, notably Cuba and the Bahamas. Most Everglades plants and animals are typical of the temperate zone to the north, but a significant minority are from the Caribbean tropics to the south. All of these species have adapted to the region’s unique environmental characteristics. Observers have consistently been awed by the vast numbers of wading birds—heron, egrets, ibis, and wood storks among them—that nest and
feed in the Everglades. Among the other species found in the Everglades are the royal palm, the Caribbean mahogany, multicolored tree snails, the Florida panther, the Cape Sable seaside sparrow, and the ethereal ghost orchid. Nearby mangrove forests, keys, and bays are home to species that include the American crocodile and the manatee and aquatic species like crabs, tarpon, pink shrimp, and mullet, which are important to sports and commercial fishermen.  

People have been present in the Everglades and adjacent areas since before the ecosystem began to take shape five to six thousand years ago. They adapted to the watery surroundings and, as described further in chapter 17, helped to shape the landscape by digging canals and laying down refuse heaps that formed shell islands and perhaps interior tree islands as well. Native people made intensive use of areas of slightly higher elevation and traveled extensively by boat through most of the Everglades and coastal waters, sometimes cutting passages to ease their way. Much like nonhuman predators, humans adopted seasonal hunting and fishing practices based on fluctuating water levels and their effects on food sources. Permanent European American and African American settlers arrived in the Everglades only around the middle of the nineteenth century. Later in the century, these inhabitants and Seminole Indians introduced naturalists and sportsmen to the Everglades. Having access to national media outlets, these outsiders made the Everglades more widely known, variously describing it as hauntingly beautiful and ominously forbidding. The urge to preserve a portion of the Everglades untouched and the urge to convert its wetlands into productive agricultural lands arose almost simultaneously around 1900. The tensions and trade-offs inherent in these two urges underlie the ensuing story.  

The term Everglades itself is evocative and potentially misleading. One definition of glade is “a grassy open space.” Much of Florida south of Lake Okeechobee was once covered with sawgrass marsh, often stretching as far as the eye could see. Botanists classify sawgrass as a sedge, but its resemblance to prairie grasses led to its common name, sawgrass. So the term Everglades was an attempt by nineteenth-century white explorers to describe sawgrass glades that seemed endless. Charles Vignoles, the city of St. Augustine’s surveyor, was the earliest writer known to have used the term. His 1823 book, *Observations Upon the Floridas*, first describes the area as the Great Glade. Later he uses the term *Ever Glade* (italics in original). At one point the term Never Glade appears; this is likely a misprint. A map engraved by Henry S. Tanner and issued in conjunction with Vignoles’s book identified the area as the “EVER GLADES” (figure 1-1).  

Closed up as one word, Everglades is the term for the area that has stuck.
The Seminole Indians too were struck by the immense sawgrass stands, which they probably first visited in the eighteenth century. They called the area Pa-Hay-O-Kee, which is translated as “grassy water.” Although the term Everglades might suggest an environment that has ever been present, on a geological scale the Everglades is quite young; its formation began only some five to six thousand years ago.

This chapter includes a brief description of the forces that created the Everglades and a sketch of the Everglades ecosystem before engineers began to drain it to facilitate agriculture and settlement. It then moves on to a consideration of the human occupation of the Everglades and adjacent areas up to the 1920s, when a major organized campaign for a national park in the Everglades got underway.

The Everglades before Mechanized Drainage

An understanding of the predrainage Everglades begins with the area’s geology. The basement rock (the topmost unstratified rock underlying the area’s limestone) in south Florida is granite and other igneous rock. When the supercontinent of Pangaea broke up about 200 million years ago, Florida’s basement rock was detached from Gondwana (present-day west Africa) and became part of North America. This bottom stratum has an almost imperceptible west/southwest slant of roughly two to three inches per mile. Once attached to North America, the land mass that would become Florida, known as the Florida Platform (or Florida Plateau), lay beneath a shallow sea for tens of millions of years. In this period thousands of feet of limestone were laid down on top of the basement rock as countless generations of sea creatures died and fell to the ocean floor. Because the basement rock was sinking at roughly the same rate that limestone was forming, the relationship of the sea floor to the sea surface remained relatively constant.6

Only during the glacial periods of the last 2.5 million years did portions of the Florida Platform emerge above the surface of the sea. Throughout this period, glacial and interglacial periods alternated, with sea levels falling when glaciers expanded, and rising when they began to melt. During interglacial periods, when much of the Florida Platform was again submerged, additional layers of limestone formed. These layers, nowhere more than 100 feet thick, are not uniform across the Everglades. All are quite porous, but minor variations in porosity influence what can grow above them. When glacier formation caused sea levels to fall, the newly formed rock was exposed and became subject to erosion, mainly from wind. Throughout this time, forces of geological

uplift were absent in Florida, so the exposed bedrock remained flat and erosion was limited.\textsuperscript{7}

Although there probably were other times during the last 2 million years when wetlands were present in south Florida, the Everglades ecosystem as we know it began to form only about five to six thousand years ago. The most recent glaciation, the Wisconsin, occurred from 67,000 to 10,000 years before present (YBP). At the peak of this glaciation, sea level was 300 feet or more below its present level, and the land mass of the Florida peninsula was roughly twice what it is today. Analysis of prehistoric plant remains indicates that the exposed portions of the Florida Platform then were mostly dry and windswept, characterized by shifting sand dunes and later scrub forest or savanna communities. As the Wisconsin Age glaciers began melting roughly 18,000 YBP, the sea level rose quickly at first, then more gradually. By five to six thousand years ago, the sea was approaching its present level. Slightly higher limestone formations to the east (the Atlantic Coastal Ridge) and to the west in the Big Cypress Swamp created the Everglades Basin, an extremely shallow trough running through the last 100 miles of South Florida. As the sea level rose, the water table also rose, and portions of this basin became inundated during part of the year.\textsuperscript{8}

Climatic changes that marked the waning of the Wisconsin Ice Age also played a role in the creation of the Everglades ecosystem. The rising water table and warmer oceans increased the amount of rainfall. The current pattern of a rainy season from May to October and a drier winter from November to April became established. In some places, cracks in the limestone bedrock allowed springs to bubble up from the underlying aquifer. Scientists would later determine that the groundwater and surface water regimes in the Everglades are essentially one. The wetter conditions and seasonal freshwater flooding gradually produced a change in the plant and animal communities that south Florida could support. The period during one year that an area is flooded is known as its hydroperiod. Differences in hydroperiod in the Everglades are largely a function of minute differences in elevation and differences in the ability of underlying soils and rock to retain water. As hydroperiods began to lengthen about 5,000 YBP, plant communities tolerant of freshwater flooding became more and more common in the Everglades Basin. Areas that remained flooded year-round were dominated by water lilies, while somewhat shorter hydroperiods produced stands of sawgrass. As vegetation decayed over the centuries, layers of peat and muck were laid down over the limestone bedrock.\textsuperscript{9} The particular nature of the layer in any locality depended on the type of vegetation and the proportion of inorganic material that was mixed in.

\textsuperscript{7} David McCall, \textit{The Everglades: An Environmental History} (Gainesville: University Press of Florida, 1999), 5-6.
\textsuperscript{8} McCally, 5-8.
\textsuperscript{9} Scientists define muck as an organic soil that is more highly decomposed than peat. Popular writing on the Everglades tends to use the terms as synonyms.
Layers of ash found in Everglades soils demonstrate that fires caused by lightning and set deliberately by native peoples were a common occurrence. Fire was an important factor in maintaining or discouraging plant species. Nearly all of the Everglades soils were low in nutrients like phosphorous, potassium, copper, and manganese, which had important consequences for the type of plant communities that could be supported.10

The following is a sketch of the characteristics of the Everglades before the era of water control that began in the 1880s. A major collaborative effort, *Landscapes and Hydrology of the Predrainage Everglades*, published in 2011, has added significantly to the understanding of the historic Everglades ecosystem.11 In this work, Christopher McVoy and his co-authors present the most accurate snapshot of the Everglades ecosystem, circa 1850, yet achieved. As previously noted, the Everglades was (and remains) part of a larger ecosystem that included the Kissimmee River Basin and Lake Okeechobee (figure 1-2, predrainage plant communities). The Kissimmee River began in a collection of lakes south of present-day Orlando. It then meandered through a 100-mile-long, 4,500-square-mile watershed marked by wet prairies, before flowing into Lake Okeechobee. The lake began forming at roughly the same period that the Everglades did (5,000 to 6,000 YBP), as silts and peat were deposited on the lake's southern shore. At between 650 and 730 square miles, Lake Okeechobee was the second largest lake wholly within the lower 48 states. It was shallow, with a maximum depth of 20 feet, and teemed with black bass, catfish, turtles, and bullfrogs. The deposition of peat and silt along the lake’s southern shore created a natural dam, but the shore was not elevated above the lake level. Only after the level of the lake was artificially lowered did observers note an elevated rim.12

The Everglades historically received the bulk of its water directly from rainfall, but water that flowed out from Lake Okeechobee into the Everglades Basin was critically important in maintaining hydroperiods.13 The surface flow from the lake fluctuated seasonally. In all but the driest years, water flowed from the lake most of the year. South of the lake was a 660,000-acre expanse, averaging 20 miles north to south, that McVoy et al. describe as sawgrass plains. Inundated through most of the year, this area


11 Christopher V. McVoy, Winifred Park Said, Jayantha Obeyesekera, Joel A. Van Arman, and Thomas W. Dreschel, *Landscapes and Hydrology of the Predrainage Everglades* (Gainesville: University Press of Florida, 2011). Based on more than 900 primary sources, many of which are reproduced in whole or in part as appendices, this work contains painstaking reconstructions of the predrainage environments of the Everglades and the wooded uplands to the east.


13 Before drainage, the Everglades Basin also received some water as sheetflow from the Big Cypress Swamp on the west and from groundwater. It has not been possible to estimate the quantities, but these sources were clearly less important than rainfall and overflow from Lake Okeechobee. See McVoy et al., 258-261.
Figure 1-2 Predrainage Natural Areas
was dominated by sawgrass (*Cladium jamaicense*) to the virtual exclusion of other flora. It was this portion of the Everglades that early white explorers typically described as impenetrable; it was avoided even by the Seminoles. Along the southwestern shore of Lake Okeechobee, the sheet flow entered directly into the sawgrass marsh (figure 1-3, sawgrass marsh). On the southeast for a distance of about 30 miles, the sheet flow traversed a narrow band of custard apple swamp before entering the sawgrass plains. The dense custard apple swamp was home to large populations of alligators and birds. Below the tree canopy were gourd vines, moon vines, giant ferns, and epiphytes that created a jungle-like appearance. Eight or ten short rivers ran from the lake shore through the custard apple swamp before disappearing into the sawgrass marsh.

Because the Everglades Basin was virtually flat, the surface water flowing into the sawgrass plains did not coalesce into distinct streams, but spread out in a thin, even layer 40 miles wide. The very meager slope and the resistance provided by the sawgrass stands kept the water surface roughly parallel to the subsurface soil; i.e., water depth was virtually the same from north to south at any given time. West of Lake Okeechobee, the Caloosahatchee River rose out of the marsh and flowed to the Gulf of Mexico past the future site of Fort Myers. To the east, the St. Lucie River arose,

*Figure 1-3. Sawgrass marsh*

15 McVoy, et al, 166-170, 258-260; McCally, 62-64.
flowing into the Atlantic past present-day Stuart. Neither river connected directly to Lake Okeechobee.16

South of the sawgrass plains, a more varied landscape, called by McVoy et al. the ridge and slough landscape, made up roughly 55 percent of the historic Everglades, encompassing some 1.5 million acres. Minute differences in elevation created “ridges” dominated by sawgrass, interspersed with sloughs, often called “leads” or “channels” by early explorers. The ridges and sloughs ran parallel to the primarily north-to-south flow of water. In a typical year, water would recede from the ridges in the dry winter season, but some depth of water would remain in the sloughs. The seasonal variations in water level alternately concentrated and dispersed small marine animals, with important consequences for predators. Some ponds that held water in the dry season were created by alligators with their tails and are known as alligator holes. The sloughs supported floating vegetation, primarily white water lily.17

Thousands of slightly elevated tree islands, sometimes called hammocks, dotted the ridge and slough landscape. This alternation of sloughs, ridges, and tree islands has led scientists to call this region a mosaic or a patterned peatland. Ranging in size from a few feet across to several hundred acres, the tree islands can be classified into two major types. Strand tree islands were teardrop- or lens-shaped when viewed from above, often with a slightly higher “head” at the upstream side. Strand islands also aligned with the water flow. The second type of tree island was the bayhead, a smaller round- or oval-shaped island. Historical accounts indicate that strand islands supported mostly shrub vegetation—wax myrtle, coco plum, and dahoon holly—and the occasional cabbage palm (figure 1-4, hammock vegetation). As the name suggests, bayheads seem to have been dominated by shrubby trees commonly known as bays or myrtles. Tree islands provided important nesting sites for terrestrial and

17 McVoy et al., 118, 188-189.
semi-aquatic animals. They also were extensively used by native populations, who quite possibly had a role in their creation. Some, but by no means all, tree islands are associated with anomalies in the underlying bedrock, but the mechanisms of their formation are poorly understood. The presence of middens and other evidence of human occupation of tree islands dating to 5,000 or more YPB suggest a possibility of human agency in their formation, as discussed below.18

From the ridge and slough region, water flowed out of the Everglades to the sea via two main pathways: 1) the Shark River Slough and the coastal mangrove belt and 2) gaps in the Atlantic Coastal Ridge. Marshes of shallower soil depth flanked the lower course of the Shark River Slough. It is believed that before drainage, the vegetation of these marshes was quite similar to that of the slough, although the marsh areas were

Figure 1-5. Pine upland

18 McVoy, et al, xx, 175-179, 189-191; Gunderson and Loftus, 221-222. See chapter 17 for a discussion of the scientific evidence supporting the possibility that tree islands formed atop aboriginal middens.
probably less variegated. Portions of these marshes likely were dry during part of the year.\textsuperscript{19} Short coastal rivers, such as the Harney and Shark, carried water through the mangrove belt into the Gulf of Mexico. Other rivers or creeks led from Shark River Slough into Whitewater Bay. Except in very dry periods, the ridge and slough region remained hydrologically connected to the Big Cypress Swamp to the west.\textsuperscript{20}

The presence of the Atlantic Coastal Ridge directed much of the Everglades sheet flow to the south and southwest, but historically as much as 40 percent of Everglades outflow exited through gaps in the ridge to the Atlantic Ocean. In some of these gaps, waters coalesced into short, year-round rivers, including the Hillsboro, New, Little, and Miami. A large number of the channels through the ridge, known historically as coves, indentations, or prairies, carried water out of the Everglades during wetter periods of the year. Later, these also became known as transverse glades or finger glades. Before drainage, many of the transverse glades supported sawgrass stands. Southwest of present-day Miami, wider gaps were present in the coastal ridge. These areas of higher ground surrounded by marsh became known as the Everglades Keys. Long Pine Key in Everglades National Park is southernmost of these keys. In the past, the higher elevations of the Atlantic Coastal Ridge and a sand ledge that sloped west from it contained forests. Often referred to today as pine flatwoods or pine uplands, these more elevated areas supported a mosaic of plants before drainage. Pines, primarily slash pine, were present, but so were hardwoods, saw palmettos, cabbage palms, and grasses (figure 1-5, pine upland). The uplands also were pockmarked with thousands of ponds that supported aquatic vegetation. Historically, these higher areas provided major habitat to birds like the wild turkey, deer, panther, bear, and other mammals.\textsuperscript{21}

Dense forests of red, white, and black mangrove characterized the coastline of South Florida. The mangrove belt was thinner along the southeast coast but up to several miles deep along the Gulf Coast (figure 1-6, mangroves on the Gulf coast). Red mangrove is the most salt-tolerant of the three varieties, and its prop-root system provided shelter to the young of innumerable marine species. Understory in the mangrove forests included orchids, bromeliads, and tree cacti. Each winter, large colonies of wading birds—herons, ibis, and wood storks—established rookeries in the mangrove forests. A number of lakes and bays marked the area inland from Cape Sable; the cape itself had an expanse of sand beach and slightly elevated prairies behind it. A large assemblage of mangrove islands, later called the Ten Thousand Islands, stretched along the Gulf Coast from near the outlet of Lostmans River to present-day Naples.\textsuperscript{22}

\textsuperscript{19} These areas are today known as marl marshes or marl prairies; McVoy et al. believe that the marshes historically had accumulations of peat that later burned off when drainage exposed them.
\textsuperscript{20} McVoy, et al., 175-176, 261.
\textsuperscript{21} McVoy, et al., 224-228, 273-275; McCally, 69-76.
\textsuperscript{22} McCally, 76-80.
At the toe of the peninsula, beyond the margin of the mangrove forests, lay Florida Bay, a shallow, roughly triangular body of water lying between the mainland and the arch of keys that stretched southwest from Biscayne Bay some 150 miles to Key West. Florida Bay and the smaller bays and estuaries opening onto it were home to vast populations of fish, shrimp, lobsters, and crabs, which in turn attracted predator bird populations. Florida Bay was near the northern limit of the range of the American crocodile, which nested along its shores and on keys. The West Indian manatee and several species of sea turtle also frequented Florida Bay, grazing on the sea grasses that covered its bottom.

These were the general characteristics of the Everglades before drainage. As previously noted, humans were already present in the Everglades as the landscape was forming and had a role in its creation.

Native Peoples

Native Americans arrived in the Florida peninsula at least 12,000 years ago. Because sea level then was substantially lower than it is today, South Florida was largely arid, but was capable of supporting nomadic human populations that ranged over wide areas in search of game. Large animals like mastodons, mammoths, sloths, dire wolves, saber-toothed cats, camels, and land tortoises still roamed the North American continent. Archeologists believe that in this period, small groups of native people moved from place to place within a defined home range to take advantage of seasonal...
food sources. This early phase of native occupation, ending about 11,000 YBP, is called the Paleo-Indian period.\(^{23}\)

Changes in tools and weapons that began to appear around 11,000 YBP have led archeologists to identify this as the beginning of a new cultural tradition, the Archaic. The Archaic is subdivided into Early (11,000 to 9,000 YBP), Middle (9,000 to 6,000 YBP) and Late (6,000 to 3,000 YBP) phases. An important Early Archaic Period site is the Cutler Fossil Site, located on the Deering Estate south of Miami on the Atlantic Coastal Ridge, near Biscayne Bay. Dated to about 10,000 YBP, this site contains the earliest evidence of human occupation of South Florida. Fossilized bones of mammoths, sloths, dire wolves, and saber-toothed cats have been found at the site. Over the course of the Archaic, South Florida's inhabitants gradually adopted a more settled way of living, although settlements likely remained small. For much of the Archaic, native people probably continued to be organized in small family groups with little formal social ranking. Early Archaic sites have not been found in the Everglades. Because sea level was several feet lower in Early Archaic times, it is possible that sites from this period lie submerged just offshore.\(^{24}\)

As the Everglades ecosystem and Lake Okeechobee began taking shape five to six thousand years ago, food sources expanded dramatically and native populations began growing. The formation of marshes and coastal estuaries provided a rich source of fish, shellfish, reptiles, and amphibians. Coastal, riverside, and lakeside dwellers supplemented these food sources with the hunting of land animals and the gathering of fruits and edible roots. In some cases, the natives may have encouraged the growth of useful plants by transplanting them or clearing out undesirable growth. As early as five to six thousand ago (during the late Archaic), native groups along the Gulf Coast had established year-round coastal settlements where they practiced a fishing-hunting-gathering way of life. Horr's Island, a site in the Ten Thousand Islands just northwest of the park's boundary, has revealed evidence of a settled population without ceramics or field agriculture about 6,000 YBP. Areas surrounding Lake Okeechobee also were rich in food resources. A site known as Fort Center, northwest of the lake, was occupied as early as 3,000 YBP and sites within Everglades National Park have been dated to 5,600 YBP.\(^{25}\)

The first fired-clay pottery made in North America appeared in Florida about four thousand years ago. By about 2,500 YBP, pottery making was widespread enough

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\(^{23}\) John W. Griffin, *Archaeology of the Everglades* (Gainesville: University Press of Florida, 2002), 144-145; McCally, 34.


in South Florida to enable archeologists to define cultural areas, largely based on differences in the decoration and paste characteristics of pottery remains. In South Florida, what is generally known as the Glades tradition begins around this time. Archeologists recognize three major geographical areas within the Glades tradition (figure 1-7, South Florida cultural areas). The area around Lake Okeechobee is known as the Okeechobee (or Belle Glade) area, the area to the west surrounding the lower reaches of the Caloosahatchee River is the Caloosahatchee area, and all of South Florida below these two areas is called the Everglades area. Some archeologists recognize two subdistricts within the Everglades area: a Ten Thousand Islands district and a Keys district. It should be borne in mind that there were many similarities in food sources, cultural practices, and material culture across these areas and districts.26

Among the common characteristics of the peoples of South Florida from roughly 2,000 to 1,500 YBP were 1) overwhelming reliance on fishing, hunting, and gathering for food, 2) use of wood, bone, and shell for tools, and 3) use of dugout canoes. South Florida provides few sources of stone that can take an edge, so shells and the bones from land and marine animals were commonly used in tool-making. There is also evidence that a number of the peoples of South Florida buried their dead in the peat or muck below shallow ponds. We have little direct evidence of Glades tradition housing. Assuming continuity into the contact period, housing was probably constructed of poles inserted into the earth, with palmetto and other fronds used for roofing and siding. In the Caloosahatchee area, social organization changed considerably in this period. A socially stratified chiefdom society arose to replace the previous less formal societal structures. The Spanish later gave the name Calusa to the people of the Caloosahatchee area. Although there is debate about when this people adopted a more complex social organization, it remains one of the few known chiefdom societies that was not based on field agriculture, but rather on fishing, hunting, and gathering.27

Archeological sites from the period of the Glades tradition are plentiful in and near Everglades National Park. Archeologist Jerald T. Milanich has observed that “at one time nearly every bit of higher land adjacent to coastal salt marshes and estuaries [in South Florida] had archaeological sites on it.” Modern development has destroyed almost all of these sites along the Atlantic Coast from Biscayne Bay north through Palm Beach County. Among the site types found in Everglades National Park are shell and earth middens, mounds that served as platforms for buildings, some with associated shell platforms, as well as purpose-built ramps and canals, all constructed by native people before AD 1500. Most of these sites are along the Gulf Coast, extending to Marco Island north of the park, and in the Shark River Slough. Many tree islands within the park also bear signs of precontact native occupation. The archeological survey

26 Milanich, Archaeology, 413-417; Griffin, 132-133, 148-149.
27 Milanich, Archaeology, 321; Griffin, 283.
Figure 1-7 South Florida Cultural Areas, 2,000 Years Before Present
of the East Everglades addition uncovered the presence of a buried, mineralized layer on some tree islands. Artifacts found below this layer have been dated to 5,600 YBP. These findings show that humans were using the interior of the Everglades considerably earlier than previously thought and may well have played a role in the formation of tree islands. Few of the park’s archeological sites have benefitted from in-depth archeological study, but together they provide considerable insight into native ways of life prior to the arrival of Europeans early in the sixteenth century. A summary history of the archeological studies conducted within the park appears below in chapter 17.28

Our knowledge of the material culture of the people of the Glades tradition is limited by the fact that wood, leather, and fibers decay quickly in South Florida’s subtropical climate. These materials typically survive only when they have remained continuously submerged in peat or muck. One of Florida’s earliest archeologists, Frank Hamilton Cushing, in 1896 made some spectacular finds at the Key Marco site (on Marco Island), on the Gulf Coast between Naples and Everglades City. Among the many types of artifact preserved in the muck were bowls, pounding tools, throwing stick handles, and a miniature canoe, all of wood. Also present were sections of fish net, some with floats and weights still attached. Most renowned among Cushing’s artifacts are a four-inch-high kneeling feline figure and a painted deer head. Sites and districts within Everglades National Park with substantial evidence of Glades period occupation include Monroe Lake, Onion Key, Turner River, the Walter Hamilton Place, Rookery Mound, and Cane Patch, as well as two districts, Shark River and the Ten Thousand Islands. Archeologist John Griffin in the 1980s identified 193 Glades period sites within the boundary of Everglades National Park. Subsequent archeological work on tree islands in the East Everglades and logical inferences from the presence of a submerged site at the Anhinga Trail strongly suggest that many hundreds, if not thousands, of archeological sites remained undiscovered in the park.29

A site that reveals the engineering skills of the people of the Glades tradition is the Bear Lake site and the nearby Mud Lake Canal, within the park not far from Flamingo. Analysis of the remains found in the mounds at Bear Lake indicates that the site was occupied throughout much if not all of the Glades period prior to contact. The four-mile-long canal connected Mud Lake with Florida Bay, providing natives with a sheltered canoe route from the Ten Thousand Islands region to Florida Bay. Archeologist John Goggin described the canal as from six to nine meters wide and up to six meters deep. Mud Lake Canal was designated a National Historic Landmark in 2006. Remains of Native American-built canals are also present on Marco Island, on

Pine Island near Cape Coral, and at the Ortona site in the upper Caloosahatchee basin. The Turner River site in the park has a row of seven shell ridges and two parallel rows of conical mounds. As early as the 1920s, anthropologist Aleš Hrdlička described this as “the most noteworthy group of shell heaps and mounds to be found in the entire region.” A number of sites in the Okeechobee area, north of the park, contain complex earthworks, “including mounds, ponds, borrows, ditches, canals, and linear and annular embankments, some in peculiar geometric shapes.”

The presence at South Florida archaeological sites of artifacts made from copper and stone quarried in other regions indicates that the natives of this region participated in trading networks that brought them goods from other parts of North America. Gulf Coast shells have also been found at sites as far away as Minnesota and eastern Oklahoma. Clear evidence that maize was cultivated at the Fort Center site in the Okeechobee area as early as 2,400 YBP has led to much debate among archaeologists. It appears that the maize was grown in limited quantities, possibly for ceremonial use. Maize cultivation seems to have ceased at Fort Center about 1,500 YBP and does not appear in North Florida sites until around 1,200 YBP.

At the time of the first recorded visit of Europeans to South Florida shortly after 1500, the region may have been home to 20,000 or more inhabitants. They had developed societies based on intensive fishing, hunting, and the gathering of wetland and estuary food resources. They may have been agriculturists in the sense of transplanting and nurturing certain wild plants, but there is no evidence that they practiced field agriculture. These peoples had developed considerable skill in working local woods both for utilitarian and ceremonial objects. They had built mounds serving as platforms for buildings, some with associated shellwork plazas, burial mounds, ramps, and other earthworks and had excavated ditches and canals. In at least one area, in the lower Caloosahatchee River watershed, they had adopted a form of social organization centering on a heredity chief and subordinate positions of prestige. With the arrival of the Spanish in the early sixteenth century, the historian has historical accounts, albeit written from a wholly European perspective, to combine with the archeological record.

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32 Preconquest native populations are notoriously difficult to estimate. See the extensive discussion in John H. Hann, *Indians of Central and South Florida, 1513-1763* (Gainesville: University Press of Florida, 2003), 54-60.
The Arrival of Europeans in South Florida

The first recorded European visitor to Florida was the Spaniard Juan Ponce de León in 1513. Native people forcibly resisted Ponce’s landings and on the Gulf Coast he encountered a native who understood Spanish, making it all but certain that unrecorded visits had already occurred. When the Spanish settled Hispaniola, Puerto Rico, and Cuba after 1492, their brutal labor practices and the diseases they brought caused native populations to rapidly collapse. Well before 1513, raiders no doubt visited Florida to capture and enslave natives to work on the islands. Because this was an illegal activity, no records of these voyages survive. Ponce himself had participated in the “pacification” of both Hispaniola and Puerto Rico. In 1512, the king of Spain granted Ponce an asiento (a permission or charter) to conquer new lands. Sailing from Puerto Rico in early March 1513, Ponce reached the Atlantic Coast of the Florida peninsula in early April. Because the shores were covered in wildflowers and it was the Easter season (Pascua Florida), he named the landmass, which he believed to be an island, La Florida.33

Historians believe that Ponce’s first Florida landfall was around Melbourne Beach. He encountered no natives there and sailed south along the coast. Two attempts at landing were contested by natives with clubs, arrows, and spears. After sailing past the string of Florida keys, which he named Los Mártires (the Martyrs), he sailed up the Gulf Coast. Ponce anchored his ships at a location believed to be in San Carlos Bay, near the mouth of the Caloosahatchee River, off Sanibel Island. This put him in the heart of the Caloosahatchee cultural area, among people that the Spanish would call the Calusa. The Calusa attacked the Spaniards twice, the second time with 40 canoes, and Ponce decided to end his exploration. On his route back to Puerto Rico, he entered Biscayne Bay and noted the presence of a village at the mouth of the Miami River that he called Chequescha. This was the seat of a native group that the Spaniards subsequently would refer to as Tequesta (sometimes spelled Tekesta). Ponce returned to the domain of the Calusa in 1521, having obtained royal permission to establish a colony. Evidence suggests that he returned to San Carlos Bay, where he again met with a chilly reception. His 200 settlers were repeatedly attacked, and in one skirmish, Ponce received a thigh wound. He withdrew his party to Cuba, where his wound became infected and Ponce died in July 1521 at the age of 47.34

After Ponce’s second voyage, Spain made no effort to garrison or settle South Florida until the 1560s. In the interim, Spanish captains are known to have stopped

from time to time to take on wood and water, and slave raiders surely also were active. The two major Spanish attempts to explore La Florida (a name they soon were applying to all of eastern North America) started in the area of Tampa Bay and headed north, not south. The expedition of Pánfilo de Narváez began in 1528 and that of Hernando de Soto in 1539. These expeditions or raids in force depended on native people for food. South Florida supplied neither the maize that the intruders and their horses needed for subsistence nor the precious metals they mainly sought. De Soto’s journey had devastating effects on chiefdom societies in North Florida and elsewhere in the Southeast; its effects on South Florida native groups are harder to assess. South Florida became more important to the Spanish after the middle of the century as her treasure ships continued to be wrecked off Florida’s coasts. South Florida natives appropriated the salvaged cargoes and killed many survivors, although they took in some as vassals.35

Among the Indian groups identified by the Spanish in sixteenth century South Florida were the Calusa, the Tequesta, and the Ais (figure 1-8, Native American Groups at Contact). As previously mentioned, the principal village of the Tequesta was at the mouth of the Miami River. Almost certainly, the principal town of the Calusa was on Mound Key, in Estero Bay just south of the mouth of the Caloosahatchee River. The homeland of the Ais was on the lagoon known as the Indian River and extended from St. Lucie Inlet north toward Cape Canaveral. Two smaller native groups, called the Jobe and Jeaga by the Spanish, occupied the coast south of the Ais and apparently were subordinate to them. Most of the permanent villages of all these groups were on the coasts. Archeological evidence indicates that camps and settlements occurred in the interior as well, notably on the tree islands of the Everglades. Native people routinely traversed the Everglades in canoes, hunting, fishing, and gathering. By the time that the Spanish returned to South Florida in 1564, the Calusa seem to have assumed a more dominant position among many of the other peoples. Spanish records indicate that the Calusa were able to exact from other tribes a share of the booty and captive sailors from shipwrecks. Relationships among the tribal groups, however, were fluid, marked by a shifting mixture of alliances, rivalries, and vassalage relationships.36

A French settlement, known as Fort Caroline, planted on the banks of the St. Johns River in North Florida in 1564, suddenly made the whole peninsula of greater importance to the Spanish. King Philip II named Pedro Menéndez de Avilés governor of Florida and directed him both to eliminate the French and make the province more secure (figure 1-9, Menéndez de Avilés). Arriving off the Florida coast in late August 1565, Menéndez de Avilés wasted no time in founding the city of St. Augustine and killing almost all of the French settlers and soldiers. He then began to implement a

36 Hann, 19.
Figure 1-8 Native American Groups at Contact, circa 1500
plan for establishing Spanish garrisons at intervals along the Florida coast. These outposts would guard against encroachment by the French or English, help protect sea lanes, and begin the work of converting the natives to Christianity. The Spanish under Menéndez de Avilés established outposts at Calos, their name for the principal village of the Calusa on Mound Key, and at Tequesta. The natives were not interested in abandoning their traditions and beliefs, and Spanish soldiers provoked hostility by killing two chiefs and some headmen at Calos. By early 1571, the Spanish had withdrawn from South Florida. For the next century, the Spanish crown concentrated its efforts in North Florida, where it established a string of missions, largely leaving the people of South Florida alone.37

The Spanish would not again attempt a mission to the Indians of South Florida until late in the seventeenth century. It is likely that fishermen from Cuba began plying their trade in the waters off Florida’s southwest considerably earlier. These fishermen adopted the practice of making temporary camps (known as ranchos) onshore, at places like Cape Sable on the mainland and in the keys, to prepare and dry fish. They hired natives to help with this work, and many South Florida Indians learned at least some Spanish. Franciscan priests returned to the Calusa at Calos in 1697, but they were

openly mocked, abused, and barely escaped with their lives. In the early eighteenth
century, the Spanish tried bringing some South Florida Indians to Cuba, but almost
all died of disease. Jesuits returned to Tequesta in 1743 to establish a mission. They
found about 100 Indians belonging to the Tequesta, Calusa, and several other tribes.
The Jesuits’ superiors soon concluded that the mission was not worth its cost and the
priests were withdrawn.38

Throughout the seventeenth and eighteenth centuries, the native population of
the Florida peninsula declined precipitously. European diseases like smallpox and in-
fluenza were a primary cause, but deadly raids by the English and their Indian allies
played a significant role. The English settled at Charleston (originally Charles Towne)
in the Carolinas in 1670. As that colony grew, it posed a serious threat to Spain’s claim
to the entire Southeast. By the late seventeenth century, the Spanish and English had
identified some 50 to 100 Indian groups in this region. The names applied by the Eu-
ropeans were based on linguistic or geographic factors and often were meaningless to
the native people themselves. Most of the native groups living in present-day South
Carolina, Georgia, Alabama, and Florida belonged to a linguistic and cultural tradition
known as Muskogee (or Maskókî). Among these were the Calusa, Tequesta, Appa-
lachee, Alabama, Choctaw, Chickasaw, Oconee, Ochisi, Chiaha, Yamasee, and Guale.
Although related, the languages these groups spoke were not always mutually intelli-
gible. As historian Patricia Wickman has demonstrated, these various groups ranged
widely within the Southeast and had mechanisms for incorporating members from
other groups into their polities. At times these groups made war upon one another
as well as upon groups coming from other linguistic traditions (such as the Cherokee,
who spoke an Iroquoian language). When Spain, England, and France all had colonial
presences in the Southeast, many of these groups could take advantage of European
rivalries to secure better trade terms or gain a military ally.39

Inevitably, colonial settlements in the Southeast became involved in European
wars. During the War of the Spanish Succession (known as Queen Anne’s War in
North America), 1701-1714, Indian forces led by white Carolinians devastated the
Spanish missions of North Florida. In 1715, a number of native groups, including
Yamasees, Apalachees, Chickasaws, and Cherokees, rose up against the English settlers
of Carolina. The Indians were defeated in what became known as the Yamasee War,
and many sought refuge in Spanish Florida. That members of some of the same native

38 Milanich, Laboring, 167-168, 192-193; Charlton Tebeau, Man in the Everglades: 2000 Years
of Human History in the Everglades National Park, 2d rev. ed. (Coral Gables: University of Miami

39 Patricia Wiles Wickman, The Tree That Bends: Discourse, Power, and the Survival of the
Maskókî People (Tuscaloosa: University of Alabama Press, 1999), 2-10; J. Leitch Wright Jr., Creeks
& Seminoles: The Destruction and Regeneration of the Muscogulge People (Lincoln: University
of Nebraska Press, 1986), 1-5.
groups who made war on the Spanish missions in 1702 and 1704 were establishing villages in Florida with Spanish approval in 1717 testifies to the fluid political situation in the colonial Southeast. In South Florida, meanwhile, fishermen and others from the Caribbean islands continued to trade with the Calusa and other groups, exposing them to European diseases and sometimes supplying them with rum. At the conclusion of the Seven Years War in 1763, Spain ceded Florida to Britain. At this point, Spanish control was confined largely to the areas immediately surrounding St. Augustine and Pensacola (figure 1-10, St. Augustine in the eighteenth century). It is uncertain how many members of the native groups that the Spanish had first encountered in the early sixteenth century—the Calusa, Tequesta, Ais, Appalachee, Timucua, etc.—remained in 1763. Disease, warfare, and social upheaval had taken a horrendous toll. When the last Spanish officials left for Cuba in 1764, they took with them fewer than 300 Indians. Many historians have concluded that among them were the last survivors of the Calusa and Tequesta. The Spanish, however, had little knowledge of conditions in South Florida, and some members of these tribes may well have remained in South
Florida or in the keys. By the 1760s, however, Indians whose homelands once had been farther north were well-established in Florida.  

**Origins of the People Known as Seminoles**

In the early 1700s, the Spanish were already referring to Florida Indians who declined to settle at missions as *indios cimmarones*. Over time this adjective meaning “wild,” “untamed,” or sometimes “fugitive,” became a noun and was applied to all Florida Indians, particularly in its anglicized form, “Seminole.” Historians and anthropologists agree that the great majority of the people who became known as Seminoles were people of the Muskogee tradition from farther north. The Seminole tradition is often said to spring from the Creek Indian tradition, but it should be borne in mind that the term “Creek” is a generic one coined by the British. Over the course of the eighteenth century, the English increasingly applied the term to various peoples of the Muskogee tradition previously known as Ochisi, Alabama, Chiaha, Yamasee, etc.

The dwindling of Spanish authority described above, and the constant pressure from Anglo-American settlers in Carolina and Georgia (established 1733) made relocation to sparsely populated North and Central Florida an attractive proposition for some Creeks. The initial locus of settlement was the prairies lying between the Suwannee and Withlacoochee Rivers. These Florida Indians ranged into the Big Cypress and the Everglades to hunt and may well have encountered remnants of the Calusa, Tequesta, and other Spanish-period tribes. Oral tradition among today’s Florida Indians supports the idea that some of these individuals became incorporated into the new Seminole bands.

After 20 years of British rule, Florida was returned to Spain by the 1783 Treaty of Paris, which also established the independence of the United States. No longer constrained by restrictions from London, Americans looked longingly at the rich lands lying between coastal Georgia and the Mississippi River. The incoming Spanish officials allowed British firms in Pensacola to continue trading with Southeastern Indians. 

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41 From the late eighteenth century until 1962, the term Seminole was generally applied to all Florida Indians. The Seminole Tribe of Florida achieved federal recognition in 1957. In 1962, some Florida Indians sought and achieved separate federal recognition as the Miccosukee Tribe of Indians of Florida. In addition, there are a small number of “independent” Seminoles in Florida who have chosen not to affiliate with either of the federally recognized tribes. See chapter 19.

42 The term Creek was originally applied just to the Ochisis, but soon was more broadly used to describe numerous tribes living in the watersheds of the Chattahoochee and Alabama Rivers.

43 John K. Mahon and Brent R. Weisman, “Florida’s Seminole and Miccosukee Peoples,” in Gannon, ed., *The New History of Florida*, 183-186; Brent R. Weisman, *The Unconquered People: Florida’s Seminole and Miccosukee Indians* (Gainesville: University Press of Florida, 1999), 13-14. This is a very cursory summary of a complex and often controversial history, but no more can be included here.
During the War of 1812, British agents worked to arm Indian allies and encouraged them to attack Americans. As part of that conflict, Major General Andrew Jackson invaded Florida to break up Indian combinations and prevent the British from using Pensacola to attack the U.S. Jackson also soundly defeated a major faction of Creeks at the Battle of Horseshoe Bend in 1814. He forced the Creeks to cede a vast acreage to the United States, causing more Indians to move into Florida. In 1817, the federal government opened the Alabama Territory, embracing present-day Alabama and Mississippi, to settlement, bringing waves of white settlers, many with slaves, to former Indian lands.44

The Seminole Wars

The presence of thousands of Indians in Spanish Florida within striking distance of the rich cotton lands of Georgia, Alabama, and Mississippi was a source of considerable concern to many in the U.S. Raids from both sides of the vaguely defined border were a common occurrence. Especially troubling to U.S. planters was the refuge that Florida provided to escaping slaves. People of color who had liberated themselves crossed into Spanish territory and connected with the Seminole people. Many a Seminole village had an associated village of blacks. A force of more than 300 well-armed African Americans garrisoned a fort on the Apalachicola River that the U.S. was determined to eliminate. In April 1816, a lucky shot from an American ship destroyed this “Negro Fort” and killed most of its defenders. Two years later, Andrew Jackson led a force into Spanish Florida to disrupt and punish the Indians. These events of 1816 through 1818, which pitted U.S. forces against Seminoles and African Americans, became known as the First Seminole War. Realizing that it could not prevent these incursions and having plenty of other problems in its vast empire, Spain in 1819 agreed to sell Florida to the U.S. for five million dollars.45

Florida was a U.S. territory from 1821 until 1845, when it was admitted as the 27th state. Tallahassee was made the capital, and the main focus of settlement was the region just south of Georgia (the present-day counties of Gadsden, Leon, Jefferson, and Madison) and in the lower reaches of the St. Johns River. Toward the end of the territorial period, tensions between white settlers and Seminoles broke out into war. The Second Seminole War (1835-1842), the most costly Indian war ever fought by the United States, brought some national attention to the Everglades region for the first time. During the course of the war, operations shifted ever farther south in the territory. The Seminoles had been hunting and fishing in the Big Cypress Swamp and the Everglades since the 1700s and knew the area well. As the U.S. Army and Navy sought

44 Weisman, 15.
45 Mahon and Weisman, 190-192.
to track down the remaining Indians in Florida, the Seminoles moved from camp to camp on high ground in the wetlands of South Florida. The navy also sought to keep the Indians from obtaining weapons and supplies from Cuban vessels plying the water off southwest Florida. Operating from bases at Key West, Table Top Key, and Biscayne Bay, the U.S. Navy made forays into the estuaries and rivers of the Everglades. The U.S. Army had outposts at Fort Lauderdale, along the Caloosahatchee River, and at Fort Dade, the future site of the city of Miami. Several smaller forts were established within the present boundary of Everglades National Park: Fort Poinsett at East Cape Sable; Fort Henry southwest of Fort Dade, and Fort Westcott, said to have been eight miles north of the mouth of Shark River.46 (Figure 1-11, U.S. forces burning of Seminole town Pilak-li-ka-ha.)

A notable event of the Second Seminole War was the capture and killing by the U.S. Army of an Indian chief known as Chekika. Chekika led a band of warriors, as many as 130, who were known as “Spanish Indians.” White Americans at the time distinguished these Spanish Indians from those they described as Seminoles.47 A band led by Chekika raided Indian Key, not far from the U.S. Navy base on Tea Table Key, on August 7, 1840, killing Dr. Henry Perrine and five others. In 1838, Congress had granted Perrine an entire section of 36 square miles in the Everglades, running east from Cape Sable, to experiment with the introduction of tropical crops. Following the Indian Key attack, a U.S. force from Fort Dallas under Col. William S. Harney tracked Chekika to his camp on a hammock in the East Everglades. The soldiers killed Chekika, strung up his corpse as a warning, and left the Everglades by way of the river that now bears Harney’s name. Chekika’s Hammock lies within Everglades National Park about a mile south of the Tamiami Trail, east of the Shark Valley Loop Road. By early 1842, the Army and the American public were thoroughly exhausted from fighting the Seminoles. Almost

47 The term Spanish Indian seems not to have had a precise meaning. It was sometimes applied to Indians who spoke Spanish or had connections to Spanish speakers from Cuba. It also may have implied that these were Indians descended from tribes like the Calusa and Tequesta who were present during the first Spanish period.
3,000 Indians and associated blacks had been removed west of the Mississippi River, while an estimated 300 still held out in the Big Cypress Swamp and Everglades. The U.S. government agreed to let these last remain, on an informal reservation running roughly from the mouth of the Peace River in Charlotte Harbor to the Shark River.\textsuperscript{48}

Before many years had passed, some whites were seeking to settle these marginal South Florida lands that had been left by default to the Seminoles. The U.S. government worked to persuade the remaining Indians to move west, tried to cut off their trade with Cuba, and harassed them in other ways. The Seminoles resisted the pressure, with a band attacking U.S. troops on December 18, 1855, beginning the Third Seminole War. The Army again made repeated raids into the Everglades and Big Cypress, destroying Indian camps, burning crops in the field, and killing or capturing anyone they could locate. The U.S. may have reoccupied Fort Poinsett at Cape Sable and also built a new camp, called Fort Cross, at the cape. Another facility, Camp Moulder, was established first on Chokoloskee Island and later on Pavilion Key in the Ten Thousand Islands. In May 1858, some 160 Indians under the leadership of Billy Bowlegs (Holata Micco) gave up the struggle and agreed to remove to Oklahoma. Some 100 to 150 Indians held out in the recesses of the Big Cypress and the Everglades, but the U.S. government tacitly allowed them to remain. No formal treaty concluded this last war. All of today's Seminole and Miccosukee Indians in Florida are descendants of this group of about 150 that remained.\textsuperscript{49}

**Early White Settlement in the Everglades**

Few white settlers were attracted to the Everglades region until fairly late in the nineteenth century. A federal act in 1842 granting 160 acres to settlers who staked a claim and remained for five years had little impact in South Florida. Although the Third Seminole War had ended in 1858, Indians remained in the area and white settlers often felt insecure. In addition, the Civil War and Reconstruction ensued almost immediately, slowing development in the region. During the Civil War, a U.S. naval commander noted that the city of Key West got most of its fresh meat, fish, and vegetables from farms on the mainland of Southwest Florida, indicating the presence there of a few hunters, ranchers, and farmers. Settlement was hampered because the region was remote, lacked good transportation, was flooded through much of the year, and had intense heat and humidity plus clouds of insects in the summer months. After the Civil War, cattle raising was practiced in the Caloosahatchee and Kissimmee River Valleys. By 1900, a handful of settlers had made their way to the higher ground on


\textsuperscript{49} Paige, 58-74; Mahon and Weisman, 200-201.
the periphery of the Everglades, locating on the shores of Biscayne Bay and selected areas on the Gulf Coast, such as Chokoloskee Island and Cape Sable. They fished; hunted; raised sugar cane, coconuts, citrus, and other crops; and burned charcoal for sale at Cuba and Key West. The Seminoles remained in the area, mostly keeping to themselves. The Indians grew crops on isolated tree islands and generally visited white settlements only to trade skins and bird plumes for items they did not themselves produce. With no railroads or all-weather wagon roads, settlers depended mostly on boats. Key West, more than any place on the South Florida mainland, was the locus of economic activity in the region. The 1880 census recorded 257 white residents in Southeast Florida.50

More extensive settlement of the Everglades would not be attempted unless the marshy land somehow could be drained. This was an ambition of some Americans as early as the 1830s. Florida pioneer John Lee Williams wrote in 1837 of the wonderful possibilities for agriculture in the Everglades if the region’s existing rivers could be deepened to carry excess water to the sea and the water level thereby reduced by about 10 feet. Florida’s representatives pressed the U.S. Congress in the 1840s for action on draining the Everglades. In 1847, President James Polk’s Secretary of the Treasury, Robert J. Walker, commissioned T. Buckingham Smith of St. Augustine to investigate the Everglades and prepare a report on the feasibility of draining the region for agriculture. Smith’s 1848 report concluded that the area could be drained by converting existing rivers to canals and digging additional canals within the Everglades. He put the cost of such drainage works at no more than $500,000 and forecast that sugar, rice, cotton, coffee, citrus, coconuts, and other crops could be grown. The report included statements from Seminole War veterans promoting the idea of drainage.51

Major public works projects like the drainage of wetlands were not considered a federal responsibility in this period, and Florida’s politicians worked to get the vast federal acreage in the Everglades transferred to the state. In September 1850 President Millard Fillmore signed an act commonly known as the Swamp and Overflowed Lands Act.52 Under this law, some 20 million acres of federal land, in the Everglades and many other parts of Florida, ultimately would be given to the state. To coordinate the transfer and development of this land, the Florida legislature in 1855 established the Board of Trustees of the Internal Improvement Fund (IIF). The board was given the

51 Dovell, 57, 82-91; John Lee Williams, The Territory of Florida, or, Sketches of the Topography, Civil and Natural History, of the Country, the Climate, and the Indian Tribes: from the First Discovery to the Present Time, with a Map, Views (New York: A. T. Goodrich, 1837).
52 The official title is An Act to Enable the State of Arkansas and Other States to Reclaim the Swamp and Overflowed Lands within Their Limits.
authority to sell state land and also to convey it to private parties who would undertake drainage or transportation projects. At first the board was much more interested in transportation projects—canals and railroads—than in drainage. Questionable actions by the board resulted in lawsuits, and in 1872, a federal court placed the fund in receivership. This meant the fund’s board could dispose of land by cash sale only, which precluded drainage schemes. Land grants from the board were the only incentive available to entice private interests to take on expensive drainage projects.53

The first serious effort to drain the Everglades was undertaken by a saw and file manufacturer from Philadelphia, Hamilton Disston. Described by Michael Grunwald as a “visionary capitalist,” Disston first came to Florida on a fishing trip in the 1870s. Excited by the possibilities of development in the Everglades, Disston in January 1881 made a bargain with the Trustees of the IIF to drain some 12 million acres. In return, he would receive one-half of the acreage that he was able to reclaim. The fund was still mired in lawsuits and receivership, however, so Florida Governor William Bloxham persuaded Disston to purchase outright some four million acres in the Kissimmee and Caloosahatchee watersheds. This brought the state a million dollars, restored solvency to the IIF, and allowed it to grant land to Disston’s company as the drainage work proceeded. Disston’s plan was to permanently lower the level of Lake Okeechobee by channelizing portions of the Kissimmee River, converting the Caloosahatchee River into a discharge canal, and digging at least one canal south from Lake Okeechobee through the Everglades. Between 1882 and 1884, considerable work was done in the Kissimmee and Caloosahatchee River watersheds. In the fall of 1883, a 130-foot steamboat, the Bertha Lee, used the newly constructed and improved waterways to make its way from Ft. Myers to the town of Kissimmee. Later, in 1888-1889, about ten miles of canal were dug south from Ritta on Lake Okeechobee into the Everglades marsh. This canal later was completed by the state as the Miami Canal (see below). According to a state audit, Disston permanently reclaimed about 80,000 acres in the upper Kissimmee Valley. He died in 1896, and the company he founded did no more drainage work after that date.54

Until recently, most historians concluded that although he succeeded in reclaiming a portion of the upper Kissimmee basin for agriculture, Disston ultimately failed. A careful examination of historical records by McVoy et al. indicates that Disston may in fact have achieved a 3- to 5-foot reduction in the level of Lake Okeechobee that lasted for a number of years. This estimate is based on eyewitness observations rather than measurements of lake levels, and therefore has a degree of imprecision. It seems

53 Dovell, 98-115; Grunwald, 67. Originally, the five board members were the state’s governor, comptroller, treasurer, attorney general, and registrar of lands.
54 Grunwald, 85; Dovell, 122-126, 135-138; McVoy et al., 157-162, supplementary materials on DVD, 17.
apparent, however, that after the mid-1880s, the level of Lake Okeechobee had sunk below that of the surrounding marsh and that the Everglades from that point did not receive significant outflow from the lake, as it had for centuries, if not millennia. If this was the case, the dramatic changes to Everglades hydrology began not with the state’s efforts in the 1910s, but two decades earlier.55

Following the abandonment of Disston’s project, drainage of the Everglades was not pursued until the Progressive Era of the early twentieth century. Two Florida governors, William Sherman Jennings (1901-1905) and Napoleon Bonaparte Broward (1905-1909), for the first time committed the state to the drainage and reclamation of the Everglades. In the years before Jennings took office, the state legislature and the trustees of the IIF had made lavish land grants to railroads. Governor Jennings refused to fulfill what he believed were illegal commitments, the IIF was again tied up in litigation, and the state did not proceed with Everglades drainage during his term. Jennings, however, drew the attention of the state’s residents and outside investors to the Everglades. Broward then made reclamation of the Everglades the cornerstone of his successful 1904 gubernatorial campaign. One of his first acts was to appoint outgoing governor Jennings as legal counsel to the Trustees of the IIF, and the two men worked together to promote drainage.56 Broward then got the legislature to create a state Board of Drainage Commissioners, which had the same membership as the board of trustees of the IIF. This new board then established an Everglades Drainage District (EDD) embracing some 4,300,000 acres, with powers of taxation within the district (figure 1-12 Everglades Drainage District). Large land owners in the district challenged the tax in the courts, but Broward moved forward with the limited funds available to the IIF. In July 1906, dredging began on a canal from Lake Okeechobee to the New River, which discharges to the Atlantic at Fort Lauderdale.57

Minimal study of climate, hydrology, and soil conditions preceded the beginning of the state’s effort. In 1907, The Bureau of Irrigation and Drainage Investigations of the U.S. Department of Agriculture (USDA) began field work necessary to prepare a report on Everglades drainage. Litigation against the IIF was settled out of court in December 1907, and the trustees were then able to sell 500,000 acres to Richard J. Bolles. This allowed the dredging work to be expanded to improving the existing Caloosahatchee Canal and completing the canal begun by Disston to connect Lake Okeechobee with the Miami River. Under pressure from Governor Albert W. Gilchrist (1909-1913), extracts from the USDA report, written by engineer James Wright, were released without adequate review in March 1909. In the words of Michael Grunwald, the

55 McVoy et al., 162-163.
56 Jennings and his wife, May Mann Jennings, were instrumental in establishing Royal Palm State Park in the Everglades (see chapter 2). The Jenningses and others in the period saw conservation and drainage in the Everglades as compatible goals.
57 Dovell, 194-215; McCally, 90-92.
Figure 1-12. Everglades Drainage District
Wright report was “a mess of bad data, bad analysis, and bad recommendations.” Nevertheless, it appeared to give the imprimatur of the USDA to Everglades drainage, and dredging work increased dramatically during Gilchrist’s administration. Hearings in the U.S. House of Representatives in 1912 revealed the flaws in the Wright report and cast a shadow over the state’s Everglades reclamation work.58

The uproar created by the revelations concerning the Wright report became the responsibility of Florida’s next governor, Park Trammell (1913-1917). He secured passage of new state legislation that gave the EDD authority to borrow money and to issue as much as $6 million in bonds. This borrowing was to be supported by the proceeds from a new tax within the district. In a further effort to restore confidence, the state arranged for an independent body, the Everglades Engineering Commission, to review the entire Everglades project and provide recommendations. Headed by Isham Randolph, a nationally prominent hydraulic engineer, the commission issued its report in October 1913. The commission concluded “that the drainage of the Florida Everglades is entirely practicable” and economically sound. The commission’s most important recommendation was for a major new canal from the eastern shore of Lake Okeechobee to the St. Lucie River, which was meant to draw large volumes of water from the lake and prevent flooding. It further recommended digging additional diagonal canals north of the Miami Canal, the improvement of existing canals, and a canal from the northwest shore of Lake Okeechobee. The Randolph report served as the master plan for Everglades drainage from 1913 until the hurricanes of the 1920s.59

Although the state now had a plan, it continued to struggle with financing its implementation. By the early 1920s, Florida had expended $13 million on Everglades drainage. The monies came entirely from EDD taxes and borrowing; the legislature declined to make appropriations from the state’s general fund. In addition to improving Disston’s Caloosahatchee Canal, the state had completed the North New River Canal (1912), the South New River Canal (1913), the Miami Canal (1913), the Hillsboro Canal (1915), and the West Palm Beach Canal (1920). The soils dredged up to create these “muck” canals rapidly subsided or oxidized, leaving the water level surrounding the canals the same as the level within the canals. The St. Lucie Canal was not completed until the 1930s. In 1921, the EDD began construction of a muck levee on Lake Okeechobee’s south shore, meant to protect the farms and towns that had been established there. Many of the existing canals were in need of dams and locks to prevent water from running back toward the big lake at times of low water. Canals were not always well maintained, and unanticipated problems had arisen. The carrying capacity

58 Dovell, 243-244, 283; Grunwald, 154-157, quotation at 157.
59 Dovell, 341-349; McCally, 109-115.
of some of the diagonal canals had actually decreased, because the soil on their banks had subsided or because they had become choked with silt and water hyacinths.\(^{60}\)

**The Tamiami Trail**

In addition to the state’s canal building, the construction of a highway across the Everglades in the 1910s and 1920s influenced the region’s hydrology and settlement patterns. As early as 1914, voices were calling for a road across the Everglades and the Big Cypress Swamp to link the developed areas on the two coasts. The project soon was branded the Tamiami Trail, conjoining the names of the two terminus cities, Tampa and Miami. The portion of the road on the Gulf Coast from Naples to Tampa presented many challenges, notably bridging the Caloosahatchee River for the first time. Building the east-west section through the wetlands was a more daunting challenge. Dade and Lee Counties began the project in September 1916, joined by Collier County when it was split off from Lee in 1923. The state assumed responsibility in 1924, and the 273-mile-long road was dedicated to great fanfare in April 1928. The Tamiami Trail was constructed with limestone rock blasted and dredged up to create an elevated roadway 30 feet wide. The adjacent dredged area, sometimes known as a borrow trench, on the north filled with water and became the Tamiami Canal (figure 1-13, drill barge on the Tamiami Canal). Once completed, the road was heavily used by tourists,
and provided enhanced access to markets for some farmers and loggers. Building the trail ended up adding to the negative environmental effects of drainage canals. Although bridges and later culverts were constructed to carry water under the roadbed, they had very limited capacity. The elevated trail acted as a dam, cutting off sheet flow and generally lowering water levels to the south. Once the trail opened, some Miccosukee Indians began to relocate from their remote camps, many of them in the Big Cypress Swamp, to camps along the trail. The Trail Indians, as they came to be known, sold souvenirs and created diversions like alligator wrestling to entertain tourists. Other Indians gravitated to villages operated commercially by whites in the Miami area.61

Settlement and Farming in the Everglades after the State’s Drainage

The construction of canals and roads in the first three decades of the twentieth century had far-reaching effects on the ecology of the Everglades and influenced settlement patterns. The state’s activities had the effect of lowering water levels throughout the region. This made agriculture more feasible in the deeper muck soils south and east of Lake Okeechobee, which previously had been sawgrass marsh or custard apple swamp. Farther south, the lowered water levels probably made winter vegetable growing more viable in the transverse glades and on the very eastern edges of the Everglades. It also affected the behavior and abundance of game and fish, which remained important resources for the area’s residents.

The Upper Glades

At the time that the Trustees of the IIF began selling land in 1908, some large tracts were purchased by speculators who immediately began reselling smaller parcels. A land boom was soon under way in the Upper Everglades. Wildly optimistic advertising convinced buyers that a farmstead of just 10 acres on the rich reclaimed muckland surrounding Lake Okeechobee would be profitable. This quickly proved to be an illusion—drainage had not progressed far enough, and vegetable farmers lacked transportation to get crops to markets in cities. Sustained farming efforts did not get underway until railroad links were available. Growth along the coasts of South Florida had already gotten a big boost from the efforts of two railroad entrepreneurs: Henry M. Flagler and Henry Plant. Flagler extended his Florida East Coast Railway to West

ChAPter 1: The EverglAdes to the 1920s  35

Palm Beach in 1894, to Miami in 1896, and to Homestead in 1904. On the Gulf Coast, Plant developed an extensive network of rail and steamship lines. His Atlantic Coast Line Railroad reached Ft. Myers in 1904. In January 1915, the Florida East Coast Railway extended a branch line to Okeechobee City on the lake’s north shore, and in 1918, the Atlantic Coast Line Railroad reached Moore Haven on the south shore (figure 1-14, mural celebrating arrival of railroad at Okeechobee). These rail links allowed farmers in the Upper Everglades to ship produce in refrigerated cars and also served a thriving Lake Okeechobee commercial fishery focused on catfish.62

Farmers in the early 1920s encountered a number of difficulties in bringing drained land into production. Clearing the land of sawgrass and pond apple trees turned out to be arduous labor. After being drained, the muck soils of the area compacted and oxidized and the ground sank; the dried soils also sometimes blew away and easily caught fire. In addition, the soils lacked some needed nutrients (phosphorous, potassium, copper, and manganese), and many crops failed to thrive. Not until 1927 did scientists come up with an appropriate fertilizer formula to make up for these deficiencies. Still, some farmers, especially those with previous experience with muck soils, were able to turn a profit working land on the shores of Lake Okeechobee and on the eastern edge of the Everglades Basin (figure 1-15, Housing for black tomato field workers). Almost all of this progress was wiped out by the hurricanes of 1926 and 1928. The hurricane

62 McCally, 120-121; Lawrence E. Will, A Cracker History of Okeechobee (Belle Glade, Fla.: Glades Historical Society, 1964), 120-126.
of September 1926 destroyed portions of the muck dike on the south shore of Lake Okeechobee between Newhall and Clewiston. Worst hit was Moore Haven, where a wall of water 10 to 15 feet high wiped out the town. The storm killed around 400 and left 40,000 homeless in South Florida. The September 1928 hurricane was even more devastating. It affected the whole southeastern shore of the lake, claiming 2,500 lives, most of them African-American agricultural laborers (figure 1-16, Belle Glade after the 1928 hurricane). Damage was estimated at four million dollars. It was abundantly clear by the winter of 1928-1929 that the problem of Everglades drainage was far from solved.63

The damage wrought by the hurricanes brought the U.S. Army Corps of Engineers (the Corps) into the Everglades water management picture for the first time. By

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early 1929, it was clear to all that the state’s emphasis on reclaiming marsh land for
agriculture had neglected the flood danger posed by Lake Okeechobee. The Corps
disclaimed any responsibility for drainage per se, but navigation and flood control were
within its purview. After studying the situation, the Corps recommended improving
the water-discharging capacities of the St. Lucie and Caloosahatchee Canals and the
construction of a much higher levee all along the south bank of Lake Okeechobee
and at selected places on its other banks. The Congress authorized this work in July
1930, with the proviso that the State of Florida contribute two million dollars to its
cost. The Congress later reduced the state’s portion to $500,000. Work commenced
in November 1930 on what ended up becoming an 85-mile-long barrier, known as
the Herbert Hoover Dike, averaging between 34 and 38 feet above sea level. This cost
federal taxpayers $18.5 million dollars and blocked lake views from all the surrounding
countryside. In the aftermath of the hurricanes, the state appointed another board of
engineers to revisit drainage and flood control issues. One of its recommendations
was the dredging of new, shorter east-west canals through the Everglades to the At-
tlantic. The EDD, however, already had a huge burden servicing its existing bond debt.
With the onset of the Great Depression, substantially no additional drainage work was
completed by the state for two decades.64

The Lower Glades

The Lower Glades largely lacked the rich muck soils of the Upper Glades. Resi-
dents in this region continued a way of life centering on hunting, fishing, and limited
agriculture (Figure 1-17, Coconuts awaiting shipment at Cape Sable). Cash income
came largely from selling produce, hides, fish and plumes,65 trading with the Indian
population, serving as guides for sportsmen, burning charcoal, collecting tanbark, and
harvesting a local plant known as coontie to produce starch. The population on the
keys and the mainland from Cape Sable north into the Ten Thousand Islands grew
slowly. By 1900, Flamingo near East Cape Sable and Chokoloskee Island were estab-
lished villages. Most of the settlers were white, but some African Americans were
employed as farm laborers and boat hands. East of the Everglades, the shores of
Biscayne Bay attracted citrus growers, sponge fishermen, and others. Many of South
Florida’s residents continued to fish, hunt, and gather in the interior marshes of the
Everglades, often setting up temporary camps. A substantial industrial operation in-
volving the extraction of tannin from the bark of mangrove trees operated from 1904
to 1923 on Shark River within what would become the park (figure 17-5). The Manetta
Company built a 2.5-acre platform over the mangrove swamp, on which it constructed

64 Dovell, 432-33, 483-486; Hanna and Hanna, 264-266.
65 See chapter 2 for a more detailed discussion of the plume and pelt trade.
separate housing for white and black workers, machine shops, offices, and drying sheds. Production stopped after a hurricane in 1910, but resumed during World War I and continued sporadically until 1923.66

The construction of the Ingraham Highway from Miami to Royal Palm Hammock in 1916 and all the way to Flamingo by 1922 improved access to some areas. When Henry Flagler decided in 1902 to extend his Florida East Coast Railroad to Key West, he had two routes surveyed. One was through the Everglades from Homestead to Cape Sable. This route was not selected for the railroad, but Flagler hoped to profit from the Everglades land he had received from the state as compensation for laying track down the Atlantic coast. To market this real estate, Flagler had formed the Model Land Company, headed by his key lieutenant, James E. Ingraham.67 This company and another Flagler outfit, the Dade Muck Company, worked with the Dade County Commissioners in planning a motor road from Homestead to Cape Sable by

66 The tannin extract was used in tanning leather. Before the introduction of electric motors beginning in the 1920s and 1930s, a tremendous amount of leather was required by American factories for the belts that transferred power from drive shafts to individual machines. See chapter 17 for the current status of the Shark River factory site. Tebeau, 118-120.

67 Ingraham had previously worked for another Florida railroad builder, Henry Plant.
way of Royal Palm Hammock. The road was named the Ingraham Highway in honor of James Ingraham. 68

The J. B. McCrary Company began dredging operations in 1915 along the surveyed route of the new road. As with the Tamiami Trail, the road bed was created by excavating fill from the marsh adjacent to the highway, creating a “borrow” canal next to the road. As detailed below in chapter 2, a barely passable road was built from Homestead to Royal Palm Hammock by November 1916. Slowed by the American entry into World War I in April 1917, construction efforts brought the road to the Monroe County line by 1920. Finally, in 1922 the road was completed to the vicinity of Coot Bay and Mud Lake. Paralleling the road was the borrow canal, known as the Homestead Canal. From Royal Palm Hammock, the highway ran southwest, then west to Sweet Bay Pond, then south again before angling off the southwest. Just south of Coot Bay, a spur road ran south to Flamingo, flanked by the Flamingo (later Buttonwood) Canal. The Homestead Canal extended another eight miles west to Lake Ingraham, but it is unclear whether a graded road was ever constructed along this stretch. As completed, the Ingraham Highway had a 37-foot right-of-way. The road was rock-surfaced only in Dade County; the Monroe County portion had a marl surface. 69

Ingraham Highway was a primitive road, and the Monroe County section was often impassable in the rainy season. The road’s sharp turns and the adjacent canal made it hazardous for motorists. When portions of the road were flooded during the rainy season, small boats could navigate the canal. A few entrepreneurs attempted agriculture along the route of the highway. One was Governor Jenning’s widow, May Mann Jennings, who had 300 acres of orange trees on her Madeira Farms property. 70

Hopeful farmers dug several canals at Cape Sable to drain the land for agriculture. These canals were counterproductive, allowing seawater to saturate the coastal prairies and ruining their agricultural potential. The Model Land Company subdivided some of its property at Cape Sable and built a small clubhouse and swimming pool. Its efforts to sell lots for vacation homes were a failure. The Ingraham Highway reoriented the economic activity of Cape Sable and Flamingo from Key West to Homestead and Miami, allowing commercial fishermen and others to move their products to market by truck. By the mid-1930s, more than 100 fish houses were operating from Chokoloskee to Cape Sable, some of them at Flamingo and Snake Bight in what would become

69 Mance Buttram, Christine Trebellas, Melissa Memory, and Laura Ogden, A Cultural Resource Assessment of the Old Ingraham Highway and Homestead, East Cape Sable and Buttonwood Canals (Homestead, Fla.: Everglades National Park, July 2009), 34, 41.
70 A 1953 park publication noted that “the old cultivation rows” on Jenning’s property were still visible approximately 12 miles inside the park along the Ingraham Highway. “Self Guiding Tour into Everglades National Park,” Jan. 1953, NARA M-A, RG 79, 79-62A-305, box 110.
Everglades National Park. Clam beds once extended from Chokoloskee south to the area of Harney River. Residents gathered clams and brought them to two canneries on Marco Island farther north on the Gulf Coast. The highway also gave hunters better access to the Everglades and provided access to the Miami market for moonshiners and liquor smugglers.71

A major real estate boom hit Florida’s Atlantic Coast in the 1920s. Miami was the epicenter of this speculative mania, with building lots often changing hands several times a day, each time at a higher price. Many were induced to buy Everglades land sight unseen. The Tropical Development Company bought three sections of land (more than 100 square miles) in the Lostmans River area and planned a subdivision called Poinciana. The company established a sales office on Onion Key and sold almost ten thousands lots, mostly to out-of-state buyers. The company claimed that many of the properties fronted Lostmans River, but all of them were at least a mile away in mangrove forests. The Florida boom was already on shaky ground when the September 1926 hurricane blew away the operation on Onion Key. The collapse of Poinciana left many real estate title issues that would confront the NPS during land acquisition in the 1950s (see chapter 6).72

By the late 1920s, the Everglades had already been dramatically affected by drainage canals and road building. The lowering of water levels had made more intensive agriculture possible in the northern Everglades and a few eastern sections of the Lower Glades. The presence of the Ingraham Highway provided easier access to markets for fishermen at Flamingo and nearby areas. Most of the Everglades, however, especially the 1.5 million acres of the ridge and slough landscape, remained unsettled, except for a handful of Seminoles and whites who had camps on tree islands. The collapse of the real estate boom slowed economic activity in the region several years before the onset of the national Great Depression. Many, however, still hoped to make the Everglades a major agricultural area. Additionally, as will be shown in the next chapter, some also wanted to preserve portions of the Everglades.

71 Paige, 87, 181-182; Tebeau, 104, 113-117; Linda D. Vance, “May Mann Jennings and Royal Palm State Park,” Florida Historical Quarterly 45/1 (July 1976):5-6; Buttram, Trebellas, Memory, and Ogden, 33-34, 45, 47.

Chapter 2: Early Conservation Efforts in the Everglades

Travelers and Naturalists Draw Attention to the Everglades

Until late in the nineteenth century, few Americans knew very much about the Everglades. Seminole Indians had hunted, fished, and gathered in the area since the eighteenth century. Beginning shortly after the Civil War, a few white settlers and a handful of black agricultural laborers had begun to settle the scattered points of high ground along the Gulf Coast from the Ten Thousand Islands south to Cape Sable. Typically these newcomers farmed on existing mounds created by prehistoric Native Americans. These new residents were not connected to national channels of communication, though, and what they knew of the region was not widely shared. From about 1880, sportsmen and naturalists visited the Everglades and surrounding waters in increasing numbers, almost always relying on locals to guide them. The visitors then wrote about their experiences for a national audience, adding to the general knowledge of the area and its unique natural attributes. This growing awareness was a first step in a slowly building movement to get a portion of the Everglades preserved.

A notable early visitor to the Everglades was John James Audubon, the great student and painter of American birds. Audubon visited Indian Key, Sandy Key, and Cape Sable in April and May 1832 and was awestruck by the sight of flocks of flamingos soaring over the Everglades (figure 2-1, Flamingos in the Bahamas). His Birds of America contained images of a flamingo, a roseate spoonbill, and an anhinga. During the winters of 1878-1879 and 1880-1881, Dr. James A. Henshall explored Florida Bay and the Gulf Coast of the Everglades, resulting in an 1884 book, Camping and Cruising in Florida. Two expeditions sponsored by the New Orleans Times-Democrat in the 1880s got widespread coverage in newspapers nationwide. The first trip, in late 1882, went down the Kissimmee River, across Lake Okeechobee, and to the Gulf via the Caloosahatchee River. The next year, Major Archie P. Williams led a grueling 26-day trek from the southern shore of the big lake through the Everglades Basin and down the Shark River. In 1892, railway tycoon Henry Plant dispatched James E. Ingraham to survey a possible route for a rail line from Ft. Myers across the Everglades to Miami. Ingraham’s party of 20 white men and 2 black cooks had a rough time of it. They were actually heading away from Miami, when they met an Indian, Billy Harney, who guided them safely out of the marsh. Henry Plant decided against a rail line through the Everglades. In 1896, Hugh L. Willoughby crossed the Everglades starting from the Harney River and eventually emerged at the Miami River, resulting in his 1898 book,
Across the Everglades: A Canoe Journey of Exploration. Between 1900 and 1919, archeologist Clarence Bloomfield Moore made several trips to the lower Gulf Coast of Florida and published some of his results.73

After the railroad reached Homestead in 1904, it became easier for naturalists and others to make their way into the eastern portions of the Everglades, almost always guided by local whites or Indians. John Kunkel Small, curator of the New York Botanical Garden, devoted much of his professional life to studying Florida’s plant life. Small first visited South Florida in 1901 and from then until his death in 1938, he published extensively on Everglades plant life. Many of Small’s articles appeared in The Journal of the New York Botanical Garden. In 1929, Small was one of the first to warn of the damage being done in Florida by ill-considered drainage schemes in his book From Eden to Sahara—Florida’s Tragedy.74

Dr. Small was not the only naturalist who took an interest in the Everglades. After retiring from the Smithsonian Institution in 1905, Charles Torrey Simpson built a house at Lemon City on Biscayne Bay. An expert on mollusks, Simpson made many


74 A useful summary of Small’s work is found in chapter 11 of Gail Fishman, Journeys Through Paradise: Pioneering Naturalists in the Southeast (Gainesville: University Press of Florida, 2000).
collecting trips into the Everglades and its coastal waters. His best known work, *In Lower Florida Wilds*, appeared in 1920. The ornithologist Frank Michler Chapman, an active officer of the National Association of Audubon Societies, visited Cuthbert Rookery around 1908, and helped publicize the threats to the survival of wading birds. Of particular interest to John Kunkel Small and other naturalists was a large hammock about 10 miles southwest of Homestead known as Paradise Key. The key later became known as Royal Palm Hammock for its concentration of this majestic palm. Edwin Safford, a botanist with the U.S. Department of Agriculture, in 1919 published *The Natural History of Paradise Key and the Nearby Everglades of Florida*. Botanist David Fairchild built a house on eight acres in Coconut Grove in 1926. As a plant explorer for the USDA, Fairchild had introduced thousands of species to the U.S. Two other Coconut Grove residents were Dr. John C. Gifford and Kirk Munroe. Gifford was a professor of tropical forestry at the University of Miami. Munroe, a conservationist and author of children’s books, had moved to Coconut Grove in 1886. The publications of these men helped educate the public about the glories of the Everglades and the threats to them.75

**The Feather and Skin Trade**

From prehistoric times until well into the twentieth century, residents of South Florida relied on the area’s wildlife for food and as a source of hides, furs, and feathers for apparel. In the colonial period, South Florida Indians began to sell products like turtles, furs and hides, and birds and their feathers to traders from Cuba. When whites and blacks began settling the area in the nineteenth century, they also hunted, both for their own needs and for the market. In the last quarter of the nineteenth century, a worldwide vogue for feathers, and even whole birds, on women’s hats dramatically increased the market for South Florida’s plume birds (figure 2-2, Lavish use of bird plumes in a hat).

The Everglades, where hundreds of thousands of birds established nests in rookeries every winter and spring, was a major source of the feathers and plumes demanded by the millinery trade. Among the most-sought species were white egrets, snowy egrets, flamingos, great white herons, and tri-colored herons, but almost any bird’s feathers might appear on a hat. Especially prized were “aigrettes,” the long plumes of the egret that appeared only in the breeding season. Plume hunters often would kill all of the adults in a rookery and leave the young to starve to death. Ft. Myers was a center for the plume trade; each season buyers would send dozens of hunters into

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the Everglades and other areas of Florida. Residents at Flamingo and at scattered points elsewhere along the coast earned cash by selling plumes. Naturalists, ornithologists, and well-heeled collectors also shot birds and took their eggs. Wildlife photography was then in its infancy, and naturalists believed they had no good option other than shooting birds for their studies. Private collectors and taxidermists were sometimes able to get state authorities to issue collecting permits, supposedly reserved for scientific study only. A trade in alligator skins for luggage and purses and the pelts of small mammals like otters, muskrats, and raccoons also arose.76

The American Ornithological Union (AOU), founded in New York City in 1883, was the first organization to campaign against the killing of birds for their feathers. It formed a bird protection committee and developed a model law on bird protection that it urged each state to enact. The model law made a careful distinction between game birds like ducks, coots, and turkeys that were of interest to sportsmen, and nongame birds, which were to be completely protected. In 1896, Harriet Hemenway took the lead in forming the Massachusetts Audubon Society, the first state Audubon Society. Its mission was to end the use of feathers as ornaments and promote bird protection generally. By 1902, there were 31 state Audubon Societies, which for a time worked closely with the AOU to educate the public about the dangers to birds, discourage plumed hats, and push

Figure 2-2. Lavish use of bird plumes in a hat

for the passage of laws to protect birds. In 1902, a National Committee of Audubon Societies formed to help coordinate the work of the state societies.77

Even when the AOU and a state Audubon Society were able to get a bird protection law passed, the state almost invariably failed to provide any enforcement mechanism. This was the case in Florida. The Florida Audubon Society, organized in 1900 at Maitland near Orlando, helped to pass a bird protection law the following year. It was entitled “An Act for the Protection of Birds and Their Nests and Eggs, and Prescribing a Penalty for any Violation Thereof.” The act provided penalties of five dollars and/or up to ten days in jail for each offense, but said nothing about the law’s enforcement. As it had done in other states, the AOU and the National Committee of Audubon Societies arranged to hire and pay Florida wardens to be deputized by local authorities to enforce the new law. In 1902 and 1903, Audubon hired four wardens to patrol in Florida. Paul Kroegel was appointed to patrol the newly created Pelican Island National Wildlife Refuge on the Indian River, and Guy M. Bradley of Flamingo was appointed to patrol from Cape Sable to Key West to Key Largo (figure 2-3, Audubon Warden Guy Bradley).78

Guy Bradley was 32, married, and the father of two when he was sworn in as a Monroe County warden and deputy sheriff in June 1902. He had lived at Flamingo since 1896, having worked as a boat captain and on land survey crews. Bradley had done some plume hunting himself as a young man but abandoned it as a cruel and illegal activity. He swore now to do his best to educate his neighbors and enforce the bird protection law. Some of Bradley’s neighbors at Flamingo openly defied the law, shooting birds for food and to sell for their feathers. Like most any small, isolated community, Flamingo had some rough characters and some long-standing family feuds. Walter Smith, a tough Confederate veteran, was not on friendly terms with Guy Bradley and his father, Edwin R. Bradley. Twice, Guy Bradley arrested Walter Smith’s teenaged son, Tom, for shooting birds. After the second incident Walter told Bradley he would kill him if he did it again.79

On July 8, 1905, Bradley saw Smith’s boat moored at Oyster Keys, about two miles from his home, and heard gunfire. He rowed a small boat out to Smith’s boat, where he witnessed Tom Smith and his brother Danny shooting into the rookery on

77 Graham, 7, 14-15; Oliver H. Orr Jr., Saving American Birds: T. Gilbert Pearson and the Founding of the Audubon Movement (Gainesville: University Press of Florida, 1992), 22-23, 50-51. George Bird Grinnell, publisher of the magazine Forest and Stream, had previously founded a national Audubon Society in the 1880s, but it was poorly organized and underfunded and soon disbanded.


the keys and coming back with dead birds. Bradley told the father, Walter, that he was going to make an arrest. For what happened next, we have only Walter Smith’s version. Smith claimed that Bradley fired at him with his revolver and that he shot back in self-defense. Smith sailed to Key West to turn himself in to the sheriff; Bradley’s body was discovered drifting in his boat the next day. A Monroe County grand jury ultimately accepted Smith’s claim of self-defense and refused to hand up an indictment. Whether or not Walter Smith took advantage of the confrontation to settle an old score, Guy Bradley died in the line of duty. The Audubon movement took up a collection for his widow and helped her to buy a house in Key West. It would not send another warden to the Everglades for 25 years.

Guy Bradley’s death received extensive coverage in the national press and became a rallying point for the bird protection movement. Herbert K. Job, a Unitarian minister and ornithologist, published a piece entitled “Bird Protection’s First Martyr” in Collier’s magazine, a widely circulated weekly. In 1904, the National Committee of Audubon Societies had reorganized and incorporated as the National Association of Audubon Societies for the Protection of Wild Birds and Animals (NAAS). The addition of animals to the group’s name and mission was a conscious attempt to broaden its base of support. The NAAS continued its efforts to end the plume trade. Some in the AOU believed that the push by the NAAS for legislation threatened scientific collecting of

Figure 2-3. Audubon Warden Guy Bradley

80 McIver, 152-161; William Dutcher, President, NAAS, to Mrs. Bradley, Feb. 24, 1906, EVER 584.
birds and eggs, and the AOU distanced itself from these efforts. The killing of Guy Bradley and two other bird wardens caused the NAAS to change its focus. Fearing for the lives of its wardens, the NAAS moved away from trying to protect all rookeries, devoting more energy to changing public opinion and passing legislation to ban the importation of feathers. In 1911, Audubon-supported legislation banning the sale of feathers in New York State from any source took effect. Because 90 percent of the nation’s makers of ladies hats were in New York, this was an important victory. In the end, it was the change in fashion that robbed feathers of their chic that did the most to protect the plume birds. The Guy Bradley story, amplified by the promotional efforts of the NAAS, certainly played its part in the campaign to save Florida’s birds.81

The story of the plume trade is often presented as a simple morality play: greedy and callous Florida plume hunters versus noble bird protectors, many from out of state. The reality is considerably more complex. Many plume hunters were not year-round residents of South Florida but came seasonally to exploit the region’s resources. All of the hunters were supplying a consumer market of middle- and upper-class families far to the north. Both the end consumers and opponents of the plume trade chiefly were residents of cities and towns outside of Florida, and largely outside of the South. It is safe to conclude that none of these opponents ever had to make a living on the semifrontier of South Florida. Selling plumes was one of the few sources of cash income for South Florida residents. In addition, a number of the ornithologists and bird protectors who protested against the plume trade had no qualms about shooting birds for their study collections or as hunters.

**Royal Palm State Park**

At almost 400 acres, Paradise Key or Royal Palm Hammock is one of the largest of the Everglades keys. Royal palms as tall as 100 feet towered over the hardwood forest there, making the key visible for miles. Indians and local whites had established camps for hunting, trapping, and moonshine making on the key for decades before it was known to outsiders. Seminoles brought writer Kirk Munroe to the key in 1882, and a local hunter, Ed Brewer, named it Paradise Key. Areas adjacent to the key were farmed and contained seasonal camps for agricultural workers. The camps attracted prostitutes, and the slough running east of the hammock, now called Taylor Slough, was known locally as “dead-pecker slough.” A persistent tale claims this is a reference to the dire effects of patronizing prostitutes who enticed laborers in the area. Long-time Everglades National Park ranger Fred Dayhoff believes it more likely that the reference is to a dead woodpecker. Anthropologist Laura Ogden has shown how

81 Orr, 206-211; McIver, 161-162, 166; Graham, 76.
Paradise Key was “discovered” by outsiders and defined as a unique tropical outlier in the continental United States by naturalists. In this process, the longstanding familiarity of local residents with the hammock was generally obscured. Of most importance to this history of Everglades National Park is that the work of naturalists like John Kunkel Small and Dr. William E. Safford raised the profile of Royal Palm Hammock among scientists and others. Safford’s field work documented more than 241 plant varieties, including palms, orchids, ferns, and vines, on the hammock. By the 1900s, these naturalists and some Florida citizens were seeking ways to protect the hammock and its unique vegetation.82

Role of the Florida Federation of Women’s Clubs

The Florida Federation of Women’s Clubs (FFWC), organized in 1895 at Green Cove Springs, took on the preservation of Royal Palm Hammock as a special mission. Two Miami-area clubwomen, Edith (Mrs. John) Gifford and Mary (Mrs. Kirk) Munroe, had been tireless in urging protection for the hammock. The area had not been adequately surveyed, however, which complicated matters. As described in chapter 1, county and state authorities decided to build a rolled-surface road from Homestead to Flamingo, which was planned to go through the hammock. Immediate steps were needed to protect the area. May Mann Jennings, a dynamic Jacksonville clubwoman and the wife of former governor William S. Jennings, became president of the FFWC in November 1914 (figure 2-4 May Mann Jennings). She vowed to get Royal Palm Hammock established as Florida’s first state park. Jennings knew that Henry Flagler’s widow, Mary Lily Kenan Flagler, was willing to donate 960 nearby acres, which could be exchanged with the state for a similar plot adjacent to the hammock. This adjacent tract lacked hammock vegetation and could be leased to farmers as a source of operating income for the park. Jennings set about lobbying Governor Park Trammell and the legislature to donate 960 acres of state-owned land embracing the hammock and provide an annual appropriation. Jennings was very well-connected to Florida politicians and businessmen, and she worked all of those connections. Exhausted from overwork, May Mann Jennings missed the final days of the 1915 legislative session. Her husband, the former governor, went to Tallahassee, where he got the law passed minutes before the legislature adjourned on June 2, 1915 (figure 2-5, passage of the Royal Palm Park bill). The law granted the 960 acres to the federation, gave it full responsibility for developing and maintaining the park, but provided no appropriation.

Figure 2-4. May Mann Jennings
In November 1915, the Board of Trustees of the IIF approved the land exchange with Mrs. Flagler, making the park 1,920 acres in all.83

Pleased to have gotten the park, May Jennings moved on to the construction of a lodge for scientists and other visitors, landscaping the grounds, hiring a warden, and raising the funds to pay for all of it. She solicited contributions from Andrew Carnegie, John D. Rockefeller, Charles Deering, Mrs. Potter Palmer, and Mrs. Thomas Edison. Mrs. Edison gave fifty dollars; there is no record that the others responded. The FFWC launched a “Mile of Dimes” campaign, asking member clubs to circulate one-foot-long folders, each holding a dozen dimes. If all the slots had been filled, $6,000 would have been raised, but only about $727 actually came in. Jennings got

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83 Lucy Worthington Blackman, *The Florida Federation of Women’s Clubs, 1895-1939* (Jacksonville: Southern Historical Publishing Associates, 1940), 5, 34; Vance, “May Mann Jennings and Royal Palm State Park,” 5, 8-11; Chapter 6949, [Florida] Acts of 1915; Governor Park Trammell to May Mann Jennings, Nov. 13, 1915, MMJ papers, box 8. Vance’s article gives a good account of the lobbying campaign to get the park established and the park’s 1916 dedication; it is less reliable for the later history of the park.
Dade County to contribute $1,000 for park development, but the federation ended up having to borrow $3,500 to complete the lodge and outbuildings that were needed.84

May Mann Jennings involved herself in every detail of the park’s development, the lodge building in particular. She thought that a lodge with concrete walls and a tile roof would be most durable, but had to settle for a wood frame building to keep within budget. Among Jennings’s papers is a June 1916 elevation drawing labeled “Sketch for Lodge, Royal Palm State Park,” signed by W. C. DeGarmo. The elevation shows a substantial, symmetrical Spanish Revival Style stuccoed building with projecting rafter ends and a red pantile roof. Walter C. DeGarmo, said to be the first registered architect in Florida, was a Miami architect specializing in revival styles. The FFWC ended up without enough funds for such an elaborate building. Mrs. Jennings wrote later that a draftsman by the name of E. L. Bryant, possibly of DeGarmo’s office, prepared drawings and specifications for a wood-framed and-sided lodge building based on her pencil sketch.85

The FFWC’s annual meeting was scheduled to be held in Miami in November 1916, and the park’s formal dedication was scheduled to coincide with the meeting. Although the clubwomen pressed the county to quickly finish the road from Homestead to Royal Palm Hammock, there were delays. Problems with the road prevented delivery of building materials, and the lodge was not completed in time for the dedication. On November 23, 1916, a motorcade of 168 cars brought clubwomen and guests from Miami to the dedication; overall more than 1,000 people heard talks from James Ingraham, Mrs. John D. Sherman of the General Federation of Women’s Clubs, and Dr. Charles Simpson. Jennings had invited E. A. McIlhenny of the McIlhenny Company, world famous as the maker of Tabasco Sauce, to give an address. McIlhenny had established an egret rookery on a portion of his family’s property at Avery Island, Louisiana, and supplied breeding pairs for release in Florida. He was, however, unable to attend the dedication. S. A. Belcher, chairman of the Dade County Commissioners, was on hand to formally dedicate the Ingraham Highway. The Homestead Woman’s

84 May Mann Jennings to Mrs. Potter Palmer, November 2, 1915, Minutes of Meeting of Royal Palm Committee of Florida Federation of Women’s Clubs, Dec. 22, 1915, May Mann Jennings to Mrs. Gifford, July 31, 1916, MMJ papers; Vance, “May Mann Jennings and Royal Palm State Park,” 12.
85 W. C. DeGarmo, Sketch for Lodge, Royal Palm State Park, June 26, 1916; May Mann Jennings to Mrs. F. C. Loveland, July 6, 1916, MMJ papers, boxes 10, 23A; Nicholas N. Patricios, Building Marvelous Miami (Gainesville: University Press of Florida, 1994), 136. DeGarmo designed a number of commercial and public buildings in Coral Gables in the 1910s and 1920s.
Club oversaw the preparation and serving of a picnic lunch for all the guests (figure 2-6, luncheon at dedication of Royal Palm Park).  

![Figure 2-6. Luncheon at Royal Palm State Park dedication, 1916](image)

Construction of the lodge, a garage, a water tank, and a plant propagation house went forward after the dedication. As the chair of the park committee, Agnes Stewart (Mrs. E. C.) Loveland, wrote in June 1917:

> The isolated locality of the Park, combined with the need to always economize and the fact that laborers are not plentiful has made it imperative for us to go slow, altho [sic] as reported at last meeting the long delay in getting wall board was our greatest annoyance. However the buildings are now nearing completion and judging from the things visitors say about the place, results will be satisfactory.

In the meantime, the FFWC hired Charles Mosier as warden/caretaker for the park at $100 a month. The federation received $1,200 from Dade County for his first year's salary. Mosier had previously been responsible for supervising the landscape work at Charles Deering's Viscaya Estate on Biscayne Bay in Miami. Mosier, his wife, and a daughter moved to the park in March 1916, living for more than a year in a

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canvas tent and cooking their meals over a campfire. Mosier immediately began laying out trails on the hammock and doing other landscape work. As construction of the lodge progressed, Mosier did all the painting and staining to save the cost of hiring painters.\(^8^7\)

J. F. Umphrey of Homestead was contractor for the lodge and outbuildings (figure 2-7 lodge exterior). Mrs. Jennings opted to economize by not having an architect supervise the construction, leaving that to Mosier and the FFWC’s park committee. The lodge, a garage, and a water tower with an enclosed room below were completed before the winter of 1917-1918, and a plant shed was added a short time later. About five miles of paths also were laid out. Mosier estimated that 6,350 people visited from December 17, 1917, through May 18, 1918. To provide revenues to support

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87 “County to Help Upkeep of State Park Regularly,” Miami Metropolis, Oct. 2, 1917; May Mann Jennings to Mrs. J. C. Wright, June 14, 1915, MMJ papers, boxes 6, 11; Vance, “May Mann Jennings and Royal Palm State Park,” 14-15. Quotation is from Mrs. E. C. Loveland to May Mann Jennings and Board Members, June 12, 1917, MMJ papers.
operations, the park sold royal palms and other plants cultivated in an on-site nursery. Mrs. Mosier acted as hostess for guests.\footnote{May Mann Jennings to Mrs. John Gifford, July 31, 1916, Chair, Royal Palm State Park Committee to Club Women, September 1917, Report of Royal Palm State Park Committee, June 18, 1918, MMJ papers, boxes 10, 12, 13.}

As completed, the lodge at Royal Palm State Park was a 32-foot-by-42-foot, eight-room, two-and-one-half-story, front-gabled building of cypress and pine with screened porches on two sides. The exterior sheathing was 10-inch rough-surfaced horizontal boards stained brown, with a roof of composition shingles. The interior had wood floors, with walls of cream-colored wallboard framed by vertical wooden strips stained green. A fireplace of rough-faced Dade County limestone graced the living room. The lodge had hot and cold running water and electric lighting supplied by an on-site generator. The FFWC furnished the lodge in a rustic fashion, in a style that today is called Arts & Crafts. The living room furniture was ordered from the Old Hickory Furniture Company, which specialized in rustic designs featuring peeled log structural members and woven cane seats (figure 2-8, interior of lodge). Clubwomen contributed much of the labor for the lodge’s rugs and linens. The Longview Women’s Club either made or gathered the materials for seven woven rag rugs. Mrs. Jennings and the women of the Springfield Improvement Association hemmed bed and table linens and towels.\footnote{Royal Palm State Park Lodge – Explanation of Plans Preparatory to Making Up Specification, Mrs. E. C. Loveland to May Mann Jennings, Report of Royal Palm State Park Committee, Nov. 23, 1916, to Nov. 23, 1917, MMJ papers, boxes 10, 11, 12; Florida State Park Committee Complains of Road Conditions,” \textit{Miami Metropolis}, Jan. 5, 1917.}

\begin{figure}[h]
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\caption{Lodge interior, Royal Palm State Park}
\end{figure}
The 16-foot-by-30-foot garage used materials similar to the lodge and held three automobiles. A water tower supported a 12,000-gallon tank. At the base of the tower was a 12-foot-by-12-foot engine house, with galvanized steel walls and a pyramidal roof. This structure housed the engine for the water pump, a Delco generator for the lighting system, a workbench, and tool cabinet. The 20-foot-by-30-foot plant propagation building had open latticework walls and roof. A water well equipped with a five-inch pipe as well as a septic system with concrete walls and lid served the complex.90

May Mann Jennings asked the 1921 session of the legislature to add 12,000 acres of state land to the park, but it agreed to only an additional 2,080 acres. This brought the size of Royal Palm State Park to 4,000 acres. The legislators for the first time approved an annual appropriation for the park’s operation, in the amount of $2,500. By May 1925, W. D. Wheelock was the park warden. In 1930, the warden was making $1,500 a year, his wife, the hostess, $300 a year, and a helper $350 a year plus board. By the late 1930s, Mr. and Mrs. E. E. Atkinson were warden and hostess. The September 1926 hurricane took off part of the roof of the lodge, damaged outbuildings, and largely destroyed the plant nursery. In 1927, a wildfire burned about 50 acres of luxurious growth at the north end of the hammock. A quick response from the Homestead, Miami, and Coral Gables fire departments prevented more extensive fire damage. The FFWC asked the 1927 legislature for $20,000 for rehabilitation, but received only $10,000. About half of the appropriation was used for brush clearing. Facing falling tax revenues after Florida’s real estate bubble burst, the legislature omitted to make the regular appropriations of $2,500 for 1927, 1928, and 1929. In June 1930, the Bank of Biscayne failed, wiping out the FFWC’s accounts, but not its endowment, which was invested in government bonds. The early years of the Great Depression were hard on the federation, and Mrs. Jennings appealed to all Florida clubwomen for emergency donations for the park in June 1930.91

The Civilian Conservation Corps at Royal Palm State Park

Substantial improvements were made to Royal Palm State Park under the New Deal’s Emergency Conservation Work program, better known as the Civilian Conservation Corps (CCC). President Franklin D. Roosevelt had a long-standing commitment to conservation and land reclamation. One of his first initiatives after being sworn in as president in March 1933 was to establish the CCC. The program was designed to put unemployed single young men to work on needed conservation projects.

90 Mrs. E. C. Loveland to May Mann Jennings, MMJ papers, box 11.
91 “Royal Palm State Park: Emergency Appropriation of $20,000.00 Badly Needed,” n.d. [1927], May Mann Jennings, 1930 Report on Royal Palm State Park, MMJ papers, box 23; Mrs. W. S. Jennings to Clubwomen, June 14, 1920, NARA II, CCF, box 234; May Mann Jennings address to Southern Shade Tree Conference, Feb. 23, 1939, ENP, EVER 22965, box 1.
across the country. One major focus of the CCC was the development of state and municipal parks, and the NPS had responsibility for supervising this work. As of 1933, Royal Palm was Florida's only state park, and the state was in a position to substantially benefit from the CCC. May Mann Jennings, Miami landscape architect Ernest Coe, and others in Florida jumped at the chance to get some work done at Royal Palm. Mrs. Jennings was the prime mover in this regard. As described below in chapter 3, Coe had coordinated closely with top NPS officials beginning in 1928 in his campaign to establish a national park, and he worked these relationships to help secure a CCC camp for Royal Palm. The efforts were successful, and CCC Company 262, Camp SP-1, was established in Homestead in October 1933, with landscape architect William L. Phillips as camp superintendent.92

In 1933, William Lyman Phillips (1885-1966) was Florida field representative for the prestigious Olmsted Brothers firm and also undertook commissions on his own. Phillips had trained at Harvard and learned much about tropical vegetation while laying out the town of Balboa, the administrative center of the U.S. Panama Canal Zone, in the 1910s. Among his designs in Florida were the grounds of the Bok Tower in Lake Wales. Private work was hard to come by during the Great Depression, and Phillips

92 May Mann Jennings to Governor David Sholtz, Oct. 28, 1933, MMJ papers, box 19; Everglades National Park Association press release, Dec. 28, 1933, Gov. Sholtz papers, box 40.
was relieved to be hired as a CCC project supervisor at a salary of $220 a month. Although he lived in West Palm Beach, Phillips became responsible for CCC work in Dade County and had advisory duties in Monroe and Highland Counties. Following the Royal Palm Park project, he took over from Prentiss French as supervisor of the CCC work at Greynolds Park in North Miami Beach. He also supervised the CCC work at Highlands Hammocks State Park in Sebring. In 1935, Phillips began work on Matheson Hammock Park in Coral Gables and the adjoining Fairchild Tropical Garden, which is considered his masterpiece (figure 2-9, Limestone wall at Matheson Hammock Park).93

The men of Camp SP-1 were based at a location on South Krome Avenue in Homestead and commuted daily to Royal Palm.94 Full strength for a CCC camp was 200 men; Camp SP-1 probably rarely operated at full strength. Almost all the enrollees were unskilled, and Phillips quickly decided he would need to train them on-site in the rudiments of surveying and other tasks (figure 2-10, CCC men sawing limestone at Royal Palm). Phillips described his approach in these words:

The hammock on the portions of Paradise Key shown on this plan was burned in 1927, excepting a small section adjacent to the Lodge. Amidst the woody remains of the original hammock a new growth is coming in, largely of shrubs—marlberry, wild coffee, velvet seed, wax myrtle, groundsel tree, sumac—and Trema floridana, a fire-weed tree. Of the high forest trees the wild tamarind is abundant, also the pigeon plum and the wild fig, but most of the other tall hammock trees are rare or lacking, notably the royal palms.

The plan is to clear the area of the fireweeds, Trema and sumac, and of unsightly obstructive debris; to plant abundantly the royal palm; and to add such others of the native trees as will tend to restore the richly varied hammock growth.

In order to establish identifiable locations in this shrubby wilderness, and to give motives for planting and ways of access, the area is to be divided into irregular lanes and islands. The lanes are to be only more openly cleared than the islands; they cannot be kept as grassy glades and are not to be so thought of. They may eventually become filled with shrub growths and volunteer trees but it is anticipated that vistas, more or less boldly defined, will persist.

The plan, in respect to planting, is largely diagrammatic. Clearings will be made, trees will actually be planted as the existing growths offer opportunities and justification, in accordance with the spirit of the plan rather than literally.95

93 Faith Reyner Jackson, Pioneer of Tropical Landscape Design: William Lyman Phillips in Florida (Gainesville: University Press of Florida, 1997), xv, 68, 122-128, 140, 147, 155-158, 179-182. The CCC program represented a substantial expansion of the NPS mission. From 1933 to 1942, the NPS employed hundreds out-of-work landscape architects on state park projects across the country. Florida in fact had no state park program prior to the CCC era.
95 Jackson, 130.
It is clear from this description that Phillips did not intend to allow natural processes to take their course. Instead, he aimed to arrive more speedily at a mature hammock forest by removing unwanted plants and transplanting royal palms. Phillips and the Florida Federation of Women’s Clubs did not want visitors to have to wait too long for a pleasing display of dramatic tropical vegetation. Phillips consulted with Dr. David Fairchild on the landscape work to be done at Royal Palm. Ernest Coe gave a lecture to the men of the CCC camp, but there is no evidence that Phillips relied on Coe’s advice in his planning.96

The men of Company 262 began by clearing brush and cutting the lanes mentioned above. They soon moved on to improving the trail system with rock borders and crushed rock surfacing. Other work included installing a concrete-lined lily pond, building some open-sided, chickee-style observation shelters with thatched palm roofs, planting trees, erecting a wooden fire lookout

tower, running 12 miles of telephone line from the park to Florida City, and making repairs to the lodge. The CCC men devoted much time to carefully removing royal palms from various locations in the Miami area and transporting them to the park. Construction on a new garage to replace the 1917 frame structure began in February 1934. The garage, an equipment house, and a small pump house/deer feeding station were faced with rough-surfaced oolitic limestone rock (figure 2-11, deer pen and feeding station). The garage was 52 feet by 22 feet, with three bays and a store room. The deer feeding station (extant at this writing) was 9 feet by 9 feet with a gable roof and tiles at the gable edges. Deer were kept in a fenced enclosure to protect them from predators, and park visitors were invited to feed them. The CCC men also served as guides for park visitors. Building the lily pond and planting the larger trees required excavating or blasting the limestone rock of the hammock (figure 2-12, lily pond at Royal Palm State Park). With the work at Royal Palm winding down in June 1934, camp 262 was transferred to work on Highland Hammocks State Park at Sebring. From time to time in 1935, Phillips dispatched CCC men from the Greynolds camp to finish up some minor tasks at Royal Palm.

Camp Superintendent Phillips summarized the accomplishments of the CCC at Royal Palm at follows:

The major results of the operations at Royal Palm appear as (a) a general improvement in the ease and comfort of visitation, and a more impressive exhibition of natural features and landscape qualities; (b) a greatly enhanced orderliness and attractiveness of grounds about the Lodge, particularly on the west side; and (c) a set

97 A chickee is an open-sided structure of upright poles with a thatched palm roof. Chickees were extensively used by Native Americans and later adopted by white settlers.

98 Narrative Reports, Royal Palm State Park, Dec. 1933, Feb. 1934, June 1934, NARA II, RG 79; Reports of CCC Projects in State and Local Parks, box 15; Report on Royal Palm State Park, March 20, 1934, MMJ Papers, box 19; “Trained Guides at Service of Visitors as C.C.C. Work of Landscaping Progresses,” Homestead Enterprise, Feb. 16, 1934; Jackson, 136-137. The CCC was a great spur to state park development in Florida; the legislature established the Florida Park System in 1935 (Chapter 17025, Laws of Florida).
of vastly better, more adequate, convenient and durable service buildings located in a properly secluded service area. The effects of the planting, though little evident now, should become impressive as time goes on.99

The Fate of Royal Palm Lodge

Soon after opening a new ranger station/visitor contact building at Royal Palm Hammock in late 1951, the NPS decided it had no use for the lodge building (see chapter 7). The park’s first superintendent, Daniel B. “Dan” Beard, found the structure poorly located, in bad repair, unsightly, and a fire hazard. The service sold the lodge building to Donald and Jeannette Sullivan, who had been the last caretakers of the state park, serving from 1941 to 1947. They sold the building to Donald’s brother, Jack Sullivan. The park did not retain any of the furnishings or other items used in the lodge. The building was moved in two pieces to 106 N.E. Third Street in Homestead and reassembled on a new foundation. It stood there until 1992, when Hurricane Andrew damaged it beyond any hope of repair or restoration. In 1959, the NPS demolished the plant propagation building and the CCC-era garage at Royal Palm. The deer-feeding station remains as the last building from the state park. A number of landscape features are still recognizable.100

For 30 years, the FFWC owned, operated, and maintained Royal Palm State Park, with only a meager appropriation from the state, amounting to $2,500 per year when it was actually paid. The clubwomen supplemented this by leasing several hundred acres to tomato growers, which might bring in $800 in a good year, selling Royal Palms and other plants from the park’s nursery, and the income from supplying rooms and meals at the lodge. There was no charge for visiting the grounds or picnicking. Naturalists and students made hundreds of visits to the lodge, which made an ideal base camp for field work in the Everglades. The FFWC wanted to make the hammock’s wonders accessible to visitors but vowed to keep the area “as nearly as possible in its natural state.”101 This goal was interpreted differently in the 1920s and 1930s than it would be today. Under the FFWC’s management, holes were blasted into the limestone substrate for transplanted palm trees, rare plants were transplanted from other hammocks to Royal Palm State Park, and exotics were propagated for sale. It is perhaps fortunate that the clubwomen operated on a shoestring budget. Had their funds been greater, the road from Homestead to Royal Palm Hammock might well have ended up lined

with transplanted Royal Palms, a plan actively urged by the FFWC. As described below in chapter 5, the FFWC turned over Royal Palm State Park to be part of Everglades National Park in 1947. In April 1948, a bronze plaque commemorating the efforts of the FFWC was unveiled at Royal Palm. Superintendent, Dan Beard wrote Mrs. Jennings a few months before the National Park Service took over Royal Palm in praise of the FFWC’s work. He called the establishment of the state park “a good deed in a then very naughty world.”

102 In late 1916, the Florida Federation of Women’s Clubs asked Dade County to plant Royal Palms along with bush allamander, yellow lantana, yellow alder, yellow Jessamine, and trumpet flower along the highway. "Ingraham Highway," Homestead Enterprise, Nov. 23, 1916.

103 The plaque was at first mounted on a boulder and at this writing is affixed to the wall of the Royal Palm Visitor Center. SMR, Apr. 1948; Daniel B. Beard to Mrs. W. S. Jennings, May 25, 1947, NARA II, RG 79, NPS AF, box 901.
Chapter 3: The Movement for a National Park in the Everglades

Early Suggestions

Perhaps the first published suggestion that the Everglades had the makings of a national park came in a 1905 article in *Century Magazine*. A 16-page piece by Edwin Asa Dix and John Nowry MacGonigle entitled “The Everglades of Florida: A Region of Mystery” appeared in the magazine's February 1905 issue. Although the authors believed a portion of the region might be drained for agriculture, they also observed:

[T]here are other points of view than the practical. The mystery of the Glades creates a fascination. . . . The mystery is part of our national inheritance. . . . It has its place among the country’s native wonders, like the Mammoth Cave and Niagara Falls, the Yellowstone and Yosemite and the Grand Cañon of the Colorado, the Great Natural Bridge of Virginia and the newly discovered natural bridges of Utah. After all, it is rather a good thing to have a little of Wonderland left.\(^{104}\)

Dix and MacGonigle did not actually state that the Everglades ought to be a national park, but they strongly so implied by comparing the area to existing parks like Yellowstone and Yosemite.

A few years later, authors Anthony Weston Dimock and Julian Anthony Dimock made a similar argument by analogy. Presciently foreseeing future tourist development in the area, they wrote in 1908:

The network of rivers, chains of lakes, beautiful Everglades and ten times Ten Thousand Islands of Southern Florida, will be all-the-year playgrounds of the coming generation. Their most conspicuous charm, which has departed, might be restored if the birds of Florida could secure the same protection as the beasts of Yellowstone National Park.\(^{105}\)

At about the same time, late in Theodore Roosevelt’s second administration, U.S. Chief Forester Gifford Pinchot suggested that Royal Palm Hammock (then more commonly known as Paradise Key) might be made a national monument. Under the Antiquities Act of 1906, the president had the authority to establish a monument on land donated to the federal government. The lack of adequate surveys in the area and the confusion over ownership of the hammock prevented any action on Pinchot’s

\(^{104}\) Dix and MacGonigle, 512-527.

\(^{105}\) Anthony Weston Dimock and Julian Anthony Dimock, *Florida Enchantments* (New York: Outing Pub., 1908), 210-211.
In 1916, Dr. David Fairchild, agricultural explorer with the Bureau of Plant Industry, USDA, repeated the suggestion that Paradise Key be made a national monument. May Mann Jennings from early on viewed Royal Palm State Park as the nucleus of a future national park.106

By the 1920s, the idea of a national park in the Everglades had appeal for a number of people. Robert Sterling Yard, executive secretary of the National Parks Association, later recalled that he had made the suggestion early in that decade. In the Miami area, a group of naturalists began having informal meetings in 1922. Among them were botanist Dr. David M. Fairchild, ornithologist Dr. Harold H. Bailey, botanist and mollusk expert Charles Torrey Simpson, and forester John Gifford. The group eventually organized as the Florida Society of Natural History. According to historian Charlton Tebeau, these men began discussing the idea of a national park in the Everglades in 1923. The secretary of the interior’s annual report for 1923 stated that “an untouched example of the Everglades of Florida” should be established as a national park. In his 1925 work *The Birds of Florida*, Dr. Harold H. Bailey wrote “a large reservation in the ‘glades,’ such as the ‘Big Cypress’ and Lake Okeechobee, should be set aside for them [wildlife] as a State or National park.” 107

At least one anthropologist believed that the prehistoric Native American sites in the Everglades deserved federal protection. In 1918, noted physical anthropologist Aleš Hrdlička made a four-week reconnaissance of the shell works on the Gulf Coast of Florida from Ft. Myers south to Cape Sable. In a 1922 book, *The Anthropology of Florida*, he wrote that a group of mounds south of the mouth of the Whitney River and the complex of sites on Turner River ought to be made “national reservations.” 108

Business tycoon Barron Collier, who purchased a million acres in Southwest Florida in the 1910s, also believed a portion of the area should be made a national park. As early as 1923, when Collier was president of the Tamiami Trail Association, he floated the idea of a Tamiami Trail National Park. In 1926 and again in February 1928, at Collier’s urging, Senator Park Trammell introduced a bill calling for the NPS to make an evaluation. The bills did not identify a specific area in South Florida to be investigated and therefore did not receive consideration.109

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Wilderness on the Edge: A History of Everglades National Park

Ernest F. Coe and the Everglades National Park Association

It was not until Ernest F. Coe arrived in Florida that an organized campaign for a national park in the Everglades emerged (figure 3-1, Ernest F. Coe). Coe was born in New Haven, Connecticut, on March 21, 1867, the second son of Edward and Louisa Bonney Coe. Edward was a Civil War veteran and for a time held the position of collector or deputy collector of customs of the port of New Haven. Ernest Coe took courses in the Fine Arts Department at Yale University from 1885 to 1887, although he never received a degree. He developed a successful practice as a landscape architect in New England and for many years owned and operated the Elm City Nursery in New Haven. Coe seems never to have had any formal training in landscape architecture. He later said that he had learned much about landscape design during trips to Europe and Japan. During a 1911 trip to Japan, he studied the ancient art of bonsai, the cultivation of dwarf trees. Coe brought a number of bonsai specimens back from Japan and published an important article on bonsai in a 1923 issue of *Garden Magazine*. Next to nothing is known about Coe’s landscape practice in New England. In an obituary published in *Landscape Architecture* in 1951, Florida landscape architect William Lyman Phillips noted that he was recognized for “his bent for informal and naturalistic design.”

In 1925, Coe and his wife Anna moved to the Miami area with two nieces and a nephew, purchasing a large house at 3648 Matheson in Coconut Grove. Sometime after 1930 when the nieces and nephew had moved on, they bought a smaller house at 4131 El Prado Avenue in Coconut Grove. In relocating to Miami, Coe had hoped to design the grounds of the estate homes that some wealthy northerners were erecting in Florida, but his timing was abysmal. The overheated Florida real estate market peaked in 1925 and was in the doldrums for years thereafter. Coe maintained an office at 2311 Ponce de Leon Boulevard in Coral Gables for a few years, but had closed it by summer 1931. There is no record of his having undertaken any private landscape design commissions in Florida, although he did give lectures on tropical plant materials.

110 The collector of a port and his deputies were responsible for taking in custom duties on articles imported into the U.S.
Figure 3-1. Ernest F. Coe, circa 1930s
Once in Florida, Ernest Coe soon met the members of the Florida Society of Natural History, including Dr. David Fairchild and Dr. Harold H. Bailey, and learned about the natural wonders of the Everglades. By all accounts, he was captivated by what he saw and heard and decided to work for the creation of a national park in the Everglades. Coe made many trips into the region, drawing maps and working out tentative boundaries for a park that would include all of the important natural environments of the area, including not just the Everglades Basin, but mangrove forests along the coast, a portion of the Big Cypress Swamp, and the coral reefs of Key Largo (figure 3-2, ENPA postcard with Coe’s propose park boundary). One of the many people that Coe consulted was landscape architect William Lyman Phillips, based in West Palm Beach (see chapter 1). By spring 1928, Coe believed he had his proposal for a national park in shape and wrote to NPS Director Stephen Mather on May 18, 1928. Coe stressed that the Everglades “would make, in my opinion, one of the finest National Parks in the United States, and I believe would eventually within a very short time become one of the most popular of our national parks.” Coe was already well organized for his campaign, arranging to have at least two dozen scientists and Florida leaders send letters of support to Mather at the same time. These supporters included Charles

Figure 3-2. Everglades National Park Association postcard with proposed park boundary
Torrey Simpson, Dr. Harold H. Bailey, Frank Stoneman, editor of the Miami Herald, B. F. Ashe, president of the University of Miami, R. B. Burdine of Burdines Department Store, and a representative of Carl Fisher Properties.\textsuperscript{113}

Coe and his wife spent their summers at a family vacation home in Wakefield, Rhode Island. On their way north in 1928, they stopped in Washington and Coe had a meeting with NPS Associate Director Arno B. Cammerer on May 31, 1928. Cammerer was impressed with the work Coe had done and explained to him that an NPS inspection trip to the Everglades would be a first step in seeking national park status. Coe also met with Florida Senator Duncan U. Fletcher to discuss the introduction of a bill to authorize the inspection trip. Coe already had a mailing list of supporters, sending a report on his meetings in Washington to “friends” on June 5. In August, Coe drove over from Wakefield to Darien, Connecticut, and met with NPS Director Mather. Mather had a massive stroke in early November 1928 and would have no further role in the Everglades project. Horace M. Albright took over as NPS director on January 12, 1929.\textsuperscript{114}

From his May 1928 meeting with Cammerer, Coe would work closely with the NPS on the campaign for a national park in the Everglades. In the coming years he would spend many weeks in Washington, at times working from a desk at NPS headquarters. Getting a national park established in the Everglades became Coe’s mission for the rest of his life.

Coe stopped in Washington on his way back to Florida from Rhode Island and reached his Florida home by mid-November 1928. He then put the finishing touches on his plan for the formation of the Tropic Everglades National Park Association, designed to be the primary lobbying group in the campaign for a national park. Coe sent the association’s draft mission statement and a seven-page action plan to the NPS Washington Office for comments. The association was organized at a meeting held at the Nautilus Hotel in Miami Beach on December 11, 1928. Dr. David Fairchild was elected president and Ernest Coe executive secretary of the association (soon changed to executive chairman). The association ultimately dropped the modifier “Tropic,” becoming the Everglades National Park Association as of June 30, 1932. Dade County

\textsuperscript{113} Jackson, 83; Ernest F. Coe to Stephen D. Mather, May 18, 1928, Ernest F. Coe to Dear Friend, June 5, 1928, NARA II, RG 79, NPS CCF, box 230. Carl G. Fisher (1874-1939) made a fortune in the manufacture of automobile parts and in the 1920s was the major force in developing Miami Beach as a resort destination.

provided office space for the association in its recently completed 28-story courthouse building. (Figure 3-3. ENPA membership card.)

Ernest Coe’s passionate attachment to the Everglades, and his somewhat baroque prose style, are apparent in a publicity piece he wrote in Washington in October 1928:

This is our country’s only section within the boundaries of the States where the sightseer and tourist can find as many forms of stately palms, tropical orchids hanging from strange trees and see other truly tropical jungle growth, vieing [sic] in interest with unfamiliar tropic birds, butterflies and fish of various forms and colors; long reaches of tropic beaches and richly colored seas, verdure clad tropic islands, clear lakes and open glades. Here is where many tropic birds of fantastic form and colors congregate in great rookeries and where that weird bird, the flamingo, formerly was wont to flock by the thousands and will again as well as myriads of water fowl who make this their winter resort, just as soon as our National Government takes this wonderful area under its protecting wing.

That Coe wanted to make the entire coastline of the Everglades accessible to motor tourists is also quite apparent from the language contained in his action plan (figure 3-4A & B. Map with Ernest Coe’s scenic highway & map legend). He anticipated raising funds for:

- a scenic highway south from the Tamiami Trail, the logical North and West entrance through the miles of alluring Everglades, cypress hammock and lake country, the highway so designed as to traverse rookeries where great numbers of strange birds have for ages made their nesting home. This scenic highway to lead to the Cape Sable beaches, through thousands of great coconut palms. This highway to lead from the Cape Sable beaches easterly to a junction with the State highway leading to and from Key West. Other roads to be developed later.

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115 Other officers of the association were: Clayton Sedgwick Cooper, David Sholtz, and John O. Shares, vice presidents; F. Lowry Wall, secretary; S. P. Robineau, E. Bruce Youngs, and Dan Chappell, legislative committee. Ernest F. Coe to John O. Shares, July 5, 1930, CP, EVER 22482A; Ernest F. Coe to Senator Fletcher, Dec. 20, 1928, Everglades National Park Association press release, June 30, 1932, NARA II, RG 79, NPS CCF, box 234.

116 “Re Proposed Tropic Everglades National Park, Location of the Cape-Sable Region of South Florida,” NARA II, RG 79, NPS CCF, box 229.

Senator Fletcher asked the NPS to draft a bill authorizing an official investigation of the suitability of the Everglades as a national park, which he then introduced. At first, the NPS contemplated that the expenses of the investigating team would be borne by the local promoters of the park. When Robert Sterling Yard, executive secretary of the National Parks Association, got wind of this, he strongly objected. Yard and others believed that having the local park boosters pay for the trip would cast...

Figure 3-4A. Map with Ernest Coe’s planned scenic parkway through the Everglades
doubt on the objectivity of the investigation. Yard wrote the chairman of the House Public Lands Committee, and the bill was amended. On March 1, 1929, President Hoover signed the act directing the NPS to investigate and report to Congress on “the desirability and practicability” of establishing an Everglades park (see Appendix A for text). Because the federal fiscal year was almost over and the most comfortable time to visit the Everglades was winter, the investigating trip was scheduled for early in 1930.

### The Effect of Evolving Views on Wilderness and Its Preservation

The campaign for a national park in the Everglades got started at a time when a number of American conservationists and naturalists harbored serious misgivings

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<th>A Proposed land boundary lines</th>
<th>B Proposed shore lines and islands</th>
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<td>A.C.I. Railroad station site</td>
<td>14 Boat stations along (10-11)</td>
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<tr>
<td>P.H.C. Railroad station site</td>
<td>15 Waterway to Royal Palm Hammock</td>
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<td>East Coast State Highway</td>
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<td>West Coast State Highway</td>
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<td>Miami harbor</td>
<td>18-19 Cape Sable, peak objectives and turning point for park travel</td>
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<td>Everglades harbor</td>
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<td>East Cape Sable</td>
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<td>West Cape Sable</td>
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<td>Boat landing: East park-highway entrance</td>
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<td>Truck park-highway</td>
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<td>One way highway exit via Royal Palm Hammock and tropic jungles</td>
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<td>Turner River, west water entrance for boats going to Cape Sable, etc.</td>
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<td>General inside water route</td>
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March 1, 1930

Submitted by:
The Tropic Everglades Park Association

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118 The bill authorizing an inspection passed the Senate on January 26, 1929, passed the House on February 26, 1929, and was signed into law on March 1, 1929, as P.L. 70-897.

119 Robert Sterling Yard to Don B. Colton, Chairman, Public Lands Committee of the House, Feb. 14, 1929, NARA II, RG 79, NPS CCF, box 230; Public Law 70-897, An Act to Authorize the Secretary of the Interior to Investigate and Report to Congress on the Advisability and Practicability of Establishing a National Park to Be Known as the Tropic Everglades National Park in the State of Florida. Text of the act is in Appendix A.
about NPS policy. These misgivings centered on several issues. Some felt that the NPS, in its zeal to establish national parks east of the Mississippi, was accepting units into the system that did not meet traditional park standards. Traditionally, aesthetic grandeur on the order of the Yosemite Valley or the Grand Canyon had been the defining element of a national park. In the eyes of some, few of the tracts being considered for park status in the East measured up. Another area of concern was that the amount of road-building and other development that the agency was allowing in parks was beginning to damage the very values that had justified the parks’ establishment. As historian Paul Sutter has ably demonstrated, hundreds of thousands of motorists had taken to the national parks and other natural areas in the 1920s. Those who believed that the essence of the national park experience was the chance to spend days at a time without seeing or hearing any sign of industrial civilization deplored this. These devotees of primitive or wilderness values at times referred to those who came to the parks in autos and never ventured far from the developed areas as “tin-can” tourists (figure 3-5, Tourist camp, Dade County). Also troubling to some was the degree of influence they believed had been attained by local park boosters in determining the boundaries of prospective parks and other matters. It seemed that local proponents frequently pushed for the inclusion of uninspiring tracts that could be rapidly developed with
campgrounds and other recreational facilities. All of these issues were part of the extended discussions that developed among conservationists, scientists, NPS officials, and members of Congress during the five-year campaign to get Everglades National Park authorized.

Prominent in these discussions was Robert Sterling Yard, executive secretary of the National Parks Association. Yard had worked closely with Stephen Mather and Horace Albright in the Department of the Interior from 1916 to 1918. Yard was responsible for *The National Parks Portfolio*, a lavishly illustrated love song to the existing national parks. Some 275,000 copies of the book were distributed to members of Congress, publishers, and other opinion leaders, playing a key role in the establishment of the National Park Service on August 25, 1916. Yard decided to leave the newly formed NPS in 1918, partly because Mather had made Albright rather than Yard his principal deputy and partly because Yard disagreed with the emphasis on tourism promotion that Mather and Albright shared. Yard then became executive secretary of the National Parks Association (NPA), found in May 1919, a position he would hold until 1933. Although Yard had somewhat different goals for the parks than Mather and Albright, the three men worked together on many projects and issues. The NPA rapidly developed into an important independent supporter and sometime critic of the NPS. By the time that the campaign for a park in the Everglades got rolling in 1928, the NPA board of trustees included many of the most prominent American conservationists. Among the members were Frederick Law Olmsted Jr., probably the nation’s premier landscape architect; Dr. T. Gilbert Pearson of the National Association of Audubon Societies; Dr. Henry Baldwin Ward, national president of the Izaak Walton League; and Dr. John C. Merriam, president of the Carnegie Institution. These men, with Yard in the vanguard, would be important figures in controversies over whether the Everglades was of national park caliber and how best its fragile environments could be protected.

An understanding of the concerns that many conservationists had over a national park in South Florida requires a brief examination of the history of national park development in the East in the 1920s. Director Mather and his key aide Albright understood that most Americans lived far from the dramatic scenery of the western national parks. It became an NPS priority to seek the establishment of parks east of

121 The organization changed its name to the National Parks and Conservation Association in 1970 and to the National Parks Conservation Association in 2000.
122 Sutter, 102-106; Board of Trustee and Addresses, NPA, n.d. [~1931], JCM papers, box 188.
123 After working with Mather in Washington in the teens, Albright was superintendent of Yellowstone National Park from 1919 to 1929. From his post as superintendent, he also coordinated field activities for all of the NPS and traveled frequently to Washington to consult with Mather and Assistant Director Arno B. Cammerer.
the Mississippi, closer to the country’s major urban centers. These new parks would attract millions of new visitors, broadening the constituency for national parks. Mather and Albright knew that the more satisfied visitors they could bring to the parks, the easier it would be to maintain and expand the agency’s budgets and its prestige within the federal bureaucracy. Almost all of the western parks had been created from land that was already in federal ownership. In the East, land would have to be either donated by the states or purchased by the states from private owners. The situation would require the NPS to work closely with state governments and with local booster groups, who were in a position to lobby state legislators and mount fund-raising campaigns to buy land. Booster groups were also keenly aware of the economic benefits to be reaped by local businesses from the establishment of national parks.

Eastern park development commenced in earnest when the Congress in May 1926 authorized the establishment of Great Smoky Mountains National Park on the Tennessee/North Carolina border, Shenandoah National Park in Virginia, and Mammoth Cave National Park in Kentucky. All of these prospective parks involved private land that would have to be purchased by the respective states and donated to the federal government. In each case, only when a minimum acreage was conveyed would the NPS consider the park as established. Robert Sterling Yard believed that portions of the areas to be included in these parks did not meet national park standards for scenic grandeur. He felt that the NPS was bowing to local demands to include substandard cut-over forest areas that would be cheap to purchase and could be quickly developed for motor tourists. Troubling not just to Yard, but to forester and regional planner Benton MacKaye, forester Robert Marshall, and other conservationists was the NPS’s plans to cut ridgeline auto roads in the Shenandoah and Great Smoky Mountains Parks. The Skyline Drive in Shenandoah was completed, but pressure from conservationists killed the idea of a long ridgeline road in the Smokies. This experience with the new parks in Appalachia put these conservationists on their guard about the wave of enthusiasm coming from South Florida hoteliers and others for a park in the Everglades. Ernest Coe’s proposed scenic highway along the shoreline was of particular concern. As Paul Sutter has shown, the controversies over the parks in Appalachia and the Everglades played an important role in causing some conservationists to place greater emphasis on the protection of wilderness values (sometimes articulated as “primitive” or “primeval” values) in the national parks. This emphasis led directly to the 1935 formation of the Wilderness Society, with Yard, MacKaye, Marshall, Harvey

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124 The first national park east of the Mississippi River was Acadia, authorized in 1919.
125 The road extends only from Newfound Gap to Clingman’s Dome.
Wilderness on the edge: a history of Everglades National Park

Broome, a leading member of the Smoky Mountains Hiking Club, and forester Aldo Leopold as founding members.¹²⁶

The campaign for a park in the Great Smoky Mountains also coincided with and reinforced a belief among scientists that preserving areas for their biological values was a valid justification for national park status. Although the chief argument for making a park in the Smokies was scenic, emphasizing the rugged topography of mountains reaching over 6,500 feet in height, the area’s worth as a botanical preserve also got some attention. The discipline of ecology was in its infancy in America in the 1920s; nonetheless, the Ecological Society of America, founded in 1915, was beginning to advocate the preservation of representative areas that displayed natural conditions. As early as 1926, the society was stressing the importance of “the vast possibilities for science and education” in parks. Dr. John C. Merriam, of the Carnegie Institution and an important advisor to NPS on its educational programs, was thinking along similar lines. In 1928 he wrote a paper in which he concluded: “There is reason for attempting complete preservation of certain relics of plant and animal life associations for the enjoyment and appreciation of the people, and for future needs in scientific and economic studies.” The idea of “biological” national parks, then, was beginning to gain adherents and became part of the conversation over the fitness of the Everglades as a national park.¹²⁷

Yard and his like-minded allies kept a close watch as Ernest Coe and the Tropic Everglades National Park Association waited for the official team from NPS to make its inspection. The association continued to mount a vigorous promotional campaign for the park. A keynote of the campaign was the number of tourist dollars a national park would bring to Florida. Coe solicited statements of support from prominent scientists and conservationists, some of whom had never visited the area. Yard wrote of the association that “[t]heir proposed ballyhoo, in a word, is vicious, and I am writing strenuous letters to that effect.” He succeeded in getting Coe to hold back on disseminating the statements of support pending the report of the inspection team. As early as June 1928 Associate Director Cammerer had warned Coe to limit his publicity efforts prior to the inspection trip. It was the sort of caution that Coe could rarely heed for very long. In October 1929, on his way back to Florida from summering in Rhode Island, Coe stopped in Washington and had his first meeting with Director Horace

Albright. Once back in Florida, he worked on arrangements for the inspection team’s visit.128

The NPS Inspection Team and Its Report

The NPS official investigating party arrived at Miami by train on February 11, 1930. Its members were:

Horace M. Albright, Director, NPS
Arno B. Cammerer, Associate Director, NPS
Elbert E. Burlew, Administrative Assistant to the Secretary of the Interior
Roger W. Toll, Superintendent, Yellowstone National Park
T. Gilbert Pearson, President, National Association of Audubon Societies (Official Collaborator)
Dr. Hermon C. Bumpus, former director, American Museum of Natural History (Official Collaborator)

Unofficial participants in all or parts of the inspection trip included Dr. W. A. Clark of San Francisco, Caspar W. Hodgson of the Campfire Club of America, Dr. M. W. Stirling of the Bureau of American Ethnography, and Harlan P. Kelsey of the Southern Appalachian Park Commission. Serving as local guides for the tours were Ernest F. Coe and Dr. David Fairchild of the Everglades National Park Association. South Florida Congresswomen Ruth Bryan Owen and author Marjory Stoneman Douglas also participated.129

The inspection began with an aerial survey of the Everglades from the Goodyear blimp Defender, allowing the party to view parts of the area inaccessible by other means (figure 3-6, NPS inspection party in front of blimp).130 Marjory Stoneman Douglas and Ernest Coe had to ride in a small compartment hung below the dirigible’s main cabin. Douglas has left an unforgettable account of Coe “being sick, as inconspicuously as possible,” in a bucket during the flight. The blimp trip was followed by lunch at the

129 Arno B. Cammerer, Confidential memorandum for the files, concerning the Everglades inspection, Feb. 24, 1930, NARA II, RG 79, NPS CCF, box 229; Horace M. Albright, The Birth of the National Park Service: The Founding Years, 1913-1933 (Salt Lake City: Howe Bros., 1985), 256. Marjory Stoneman Douglas was the daughter of Miami Herald publisher Frank Stoneman. A journalist, author, and conservationist, Douglas became indelibly associated with the Everglades with the publication of her first book in 1947, The Everglades: River of Grass (see chapter 5).
130 After having built blimps and dirigibles for the U.S. military, Goodyear Tire & Rubber Co. launched its own blimp fleet in 1925. The large airships became a major promotional tool for the company, which arranged with the City of Miami to station them at Watson Island, east of the city. It made sense for Goodyear to fly inspection parties over the Everglades; a national park would promote tourism, which could only help tire sales. Maurice O’Reilly, The Goodyear Story (Elmsford, N.Y.: Benjamin Co., 1983), 60-66.
home of Dr. Fairchild, where the visitors met a number of scientists, including Charles Torrey Simpson, Dr. Harold H. Bailey, and herpetologist Dr. Thomas Barbour, director of Harvard University’s Museum of Comparative Zoology. The party then proceeded to Matecumbe Key for a two-and-one-half-day excursion into Florida Bay and up the west coast on the houseboat *Friendship*. While anchored in Tarpon Bend, the group watched as “[a] vast vermillion and gilt sunset smoked up from the Gulf to the west as thousands and thousands of adult birds in full nuptial plumage” returned to their nests, as Douglas recalled it (figure 3-7, NPS inspection party on boat). A comic moment occurred when Dr. Bumpus fell out of the boat. At the conclusion of the boat trip on February 14, the party drove to Royal Palm State Park, where May Mann Jennings and other clubwomen provided lunch and guided tours of the hammock. That evening, the official members of the party were provided costumes and reserved seats for a fancy-dress ball at the Nautilus Hotel, Miami Beach, sponsored by the Committee of One Hundred. The next day, the inspection party had a luncheon meeting with business leaders. Albright, Cammerer, and Burlew then departed for North Florida, while the rest of the group toured the Big Cypress Swamp with Dr. Bailey.\footnote{Arno B. Cammerer, Confidential memo for the files, concerning the Everglades inspection, Feb. 24, 1930, NARA II, RG 79, NPS CCF, box 229; Douglas, “The Forgotten Man.” The Committee of One Hundred, a social and philanthropic group of prominent South Florida residents, was then just two years old.}

The NPS did not release a statement concerning the Everglades inspection trip until May 1930, but within three weeks of his return from Florida, Director Albright told a meeting of the Camp Fire Club that the team was “unanimous” in favor of national park status. Robert Sterling Yard believed Albright was jumping the gun. He believed that such a public commitment would be difficult to withdraw, even if subsequent information cast doubt on the area’s eligibility. Albright wrote confidentially to a board member of the New York Zoological Society in
March 1930 stating the same unanimous opinion in favor of national park status. Secretary of the Interior Ray Lyman Wilbur announced on May 19, 1930, that the team had reported that the Everglades area “measured up to the high standards prescribed for national park establishment,” and that he would recommend that Congress authorize the park project. Apparently this statement was rushed out when the department learned that Representative Owen had on May 14 introduced a bill (H.R. 12381) authorizing an Everglades park, without waiting for the secretary’s formal report. Wilbur’s press release further noted that “the area should be preserved to protect the primitive character of the country.” As if anticipating the sort of criticism some in Congress would direct at the project, Wilbur stated that some team members’ “original conception of the Everglades as an impassable tropical jungle, festooned with lianas and with miasmatic swamps full of alligators, crocodiles and venomous snakes, was entirely shattered.” Ernest Coe was in Washington in fall 1930, helping to draft the report that was to go to Congress over Secretary Wilbur’s signature.

132 Ray Lyman Wilbur was an M.D. and a lifelong friend of Herbert Hoover, who appointed him secretary of the interior on Mar. 5, 1929.
134 Robert Sterling Yard to John C. Merriam, March 5, and Oct. 22, and Oct. 25, 1930, JCM Papers, box 187; DOI press release, May 19, 1930, NARA II, RG 79, NPS CCF, box 226; Director Albright to William White Niles, New York Zoological Society, Mar. 29, 1930, NARA II, RG 79, NPS CCF, box 230. Yard wrote to Merriam in October 1930 that Coe thought the draft report “corking” and was “awfully proud” that he had “a little part” in framing it.
In December 1930, Secretary Wilbur transmitted his official report on the Everglades to Congress. He found the Tropic Everglades National Park project to be “of outstanding merit, and the park, if established . . . would measure up to established national park standards.” He acknowledged that the scenery in certain sections, presumably the sawgrass marshes, had “a uniformity that may be said to approach monotony.” He emphasized the great diversity of environments, including the mangrove forests, and the great variety of wildlife, much of it not found elsewhere in the U.S. In recognition of the growing interest in biological parks, Wilbur mentioned the area’s value to scientists. He noted the threat to the area from fire and plant collectors and urged Congress to act while there was still time. The size of the proposed park was about 2,000 square miles (1.3 million acres), some 20 to 25 percent of which was state-owned. Relying heavily on estimates from the Tropic Everglades National Park Association, Wilbur declared land values to be quite low, predicting that the one million acres still in private hands could be obtained for about one dollar an acre. He foresaw fishing, boating, including motorboating, and nature observation as the principal visitor activities. He was careful to note that “a considerable part” of the area “would be retained in its present state as primitive wilderness.” Wilbur was confident that developed areas would be limited and would “not seriously interfere with the objective of conservation,” although he noted that any roads would have to be constructed on dredged material. He saw the Everglades as a fitting complement to the other national parks being developed in the East, and noted that it would draw its heaviest visitation in winter, when many of the western parks were difficult or impossible to visit. He devoted a sentence of his report to the area’s shell mounds that gave evidence of prehistoric human habitation.135

The tentative boundary for the park was indicated on a map that accompanied the secretary’s report (figure 3-8, maximum proposed boundary, 1934 act). This boundary followed the boundary that Coe’s ENPA advocated. The northern boundary line was set close to the 26th parallel, taking in some 225,000 acres north of the Tamiami Trail. This original maximum authorized boundary ran along the inner shoreline of the Florida Keys and took in a 12-mile section of Key Largo. If adopted, the boundary would have included 93 percent of the land area of Monroe County.136

The idea of a national park in the Everglades had significant support from the editorial pages of Florida’s newspapers. The Miami Herald led the way, but support came as well from the Miami Daily News (the Daily News-Metropolis for much of the 1920s), the Florida Times-Union (Jacksonville), the St. Petersburg Times, and many other papers. National newspapers and magazines also pushed the idea from the time the

136 Wilbur, 17.
Figure 3-8 Maximum Park Boundary from 1934 Act
first bill was introduced until final passage in 1934. In March 1931, the editors of the monthly journal *Parks and Recreation* viewed the interest of Congress in an Everglades park as “welcome news.” In January 1932, the *New York Herald Tribune* editorial page came out strongly in favor of a national park.  

**Concerns over Preserving the Wilderness Values of the Everglades**

The NPS firmly believed that the Everglades should contain a national park, but a number of scientists and conservationists had reservations. The Everglades National Park project was a hot topic in conservation and scientific circles even before Secretary Wilbur made his report. Some who had seen the area felt it lacked the dramatic scenic qualities of other national parks. Dr. John C. Merriam initially felt that only the hammock and mangrove areas had the inspirational qualities needed for a national park. The scientists’ greatest fear was that the area could not be developed for visitor access without great damage to the natural environment. Dr. Merriam believed that the Ingraham Highway had already driven away wildlife and changed the nature of the nearby vegetation. The Tropic Everglades National Park Association added to the unease by circulating a map showing substantial potential development, including the coastal scenic highway, boat stations, and “camp colony opportunities” (see figure 3-4). In conversations, Ernest Coe also spoke of building a resort hotel at Cape Sable. Concern over these development ideas led a number of scientists to suggest that the area would be better preserved as a national monument or wildlife refuge, where road and recreational development would be less than in a national park. Another concern was that the maximum area recommended by the Secretary of the Interior, embracing 2,000 square miles, included developed areas like the Tamiami Trail, railroad lines, and canals. The American Forestry Association articulated the reservations shared by many in a resolution in December 1930:

> The American Forestry Association’s approval of the proposed Tropic Everglades National Park is contingent upon the restriction of the area to be included in the park to lands which come fully up to the standards of the great National Parks, upon the preservation to the fullest possible degree of the wilderness character of the area, and upon placing the primary emphasis on national as distinguished from local considerations in acquisition of lands and in administration of the park.

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On December 15, 16, and 18, 1930, The House Committee on the Public Lands held hearings on the bill (H.R. 12381) introduced the previous May by Congresswoman Owen. The bill was quite brief, providing that the Tropic Everglades National Park would be considered established when the secretary of the interior had accepted some portion of the approximately 2,000 square miles contained within the maximum boundary as indicated on the map accompanying the secretary’s December 3, 1930, report. It was left to the secretary to determine the precise boundary at a later date. The NPS Organic Act of 1916 was to guide the administration and development of the park. Testifying before the committee were Congresswoman Owen, Senator Fletcher, Director Albright, Ernest Coe, Dr. T. Gilbert Pearson, president of the National Association of Audubon Societies, Dr. John Kunkel Small, and several others. Albright described the area as “absolutely distinctive” and up to national park standards. He thought that “probably two-thirds of this park should be kept as a wilderness accessible only by boat or on foot.” Nonetheless he saw no reason why the Royal Palm Hammock, the Cape Sable beaches, and one or two rookeries could not be made accessible to visitors. Albright believed that the Ingraham Highway could be improved and modernized and that it might be necessary to run a road “some distance” south from Everglades City into the park. Under questioning, he assured the committee that it would be easy and inexpensive to build roads in the park. He estimated that land could be acquired by the state for from $1.00 to $1.50 per acre, except on Key Largo, where the cost would be greater. In short, Albright did all he could to sell the project to the congressmen.

One incident during the hearings entered into the lore of the Everglades, sometimes in a garbled form. Baltimore surgeon and amateur naturalist Dr. Howard A. Kelly, who had often visited South Florida, testified before the committee. He brought conch shells and *Liguus* tree snail shells as exhibits and also produced a live specimen from a sack, remarking “I brought this to show you what a nice, big, kindly creature a king snake is.” With that he placed the snake on the table in front of him. In Director Albright’s recollection, this created a sensation; a woman in the audience fainted, and the court reporter jumped up, knocking over his stenotype machine. Some skeptical congressmen were already branding the Everglades bill “the snake and alligator swamp bill.” Not wanting to give any encouragement to the naysayers, Congresswoman Owen quickly picked up the snake and placed it on her lap, showing it to be harmless. In short, Albright did all he could to sell the project to the congressmen.

the representatives halted discussion of the park project.” Reporters recognized some good copy and spread the story across the country.¹⁴¹

Robert Sterling Yard was ill and unable to attend the hearings, so he sent a letter to the committee’s chairman. Yard had only two days’ notice of the hearings and lacked enough time to have his letter approved by the board of the NPA. He agreed that the Everglades needed protection, but urged careful consideration by scientists of what type of protection to afford. He advised the committee to “inquire particularly into the plan for developing and administering the proposed park” and to inform the public “to what extent, if any, and under what conditions, tourists will be permitted to enter the protected area.” Yard also raised questions about how the “local promoters” planned to raise money for land acquisition. Yard’s letter caused quite a stir in conservation circles. Although the letter represented Yard’s personal views, they were shared by other NPA board members. Two members, Dr. Merriam and Dr. Vernon Kellogg of the National Research Council, contacted Secretary Wilbur about wilderness preservation in the proposed park. The Ecological Society of America wrote Chairman Don B. Colton of the house committee expressing concerns that the NPS would bow to local pressure for excessive park development.¹⁴²

Although there was some overlap, wilderness advocates like Yard had a substantially different perspective than scientists like Victor E. Shelford of the Ecological Society of America. Yard and the other founders of the Wilderness Society placed a value on wilderness that was primarily anthropocentric and had strong spiritual dimensions. In essence they wanted to save wild spaces for a special kind of visitor experience that appealed to just a few. The ecologists were much more concerned with preserving and studying biological systems from which all visitors were excluded. These differing points of view are explored in greater depth in chapter 10.

There was considerable discussion of the Everglades project at the annual meeting of the American Association for the Advancement of Science (AAAS) held in Cleveland December 29, 1930, to January 3, 1931. Founded in 1848, the AAAS was and remains the most influential broadly based scientific organization in the U.S. As of December 31, 1930, the association had 19,526 members. Dozens of affiliated scientific and professional societies held meetings at the same time as the AAAS annual meeting, and nearly all of the board members of the NPA were AAAS members. Henry Baldwin Ward and Vernon Kellogg were on the AAAS’s executive committee


at the time. Ward, who chaired the association’s committee on conservation, was aware of the resolutions already passed by the Ecological Society of America and the American Forestry Association. He made sure that the AAAS’s resolution on the Everglades would call for the preservation of natural features without being in any way critical of the NPS.\textsuperscript{143} On January 1, 1931, the association’s governing body, known as its council, adopted the following resolution:

\begin{quote}
A Resolution on the Need for Preservation of Everglades Areas

Whereas, the southern end of the Florida peninsula contains biological features of unique character, which are found nowhere else, and

Whereas, it has been proposed to establish a national park for the preservation of these features in their primitive state, therefore the council of the American Association for the Advancement of Science

Approves of the establishment of such a park, but only under conditions that will completely exclude railway and other commercial developments and fully protect the floral and faunal associations within the limits that are established.\textsuperscript{144}
\end{quote}

While scientists and conservationists were discussing how best to protect the natural values of the Everglades, a group of U.S. Senators decided to conduct its own inspection. Gerald P. Nye of North Dakota, chairman of the Senate Public Lands Committee, five of his colleagues, and NPS Associate Director Arno B. Cammerer arrived in Miami on December 26, 1930, for a four-day tour. Ernest Coe, Dr. Fairchild, and Dr. T. Gilbert Pearson of the Audubon Society were the hosts for a series of trips that largely duplicated those of the NPS party of the previous winter, including a blimp ride. Sometime later, Senator Nye’s hometown newspaper sharply criticized the $4,000 cost of the trip.\textsuperscript{145}


\textsuperscript{144} American Association for the Advancement of Science, Board and Council Minutes, 1926-1935, AAAS Archives; Ecological Society of America, “Resolution on Everglades Tropical National Park,” Dec. 31, 1930, Ecology 12/2 (Apr. 1931), 430. The Ecological Society’s resolution stated: “The Ecological Society of America endorses the formation of the Everglades National Park provided the largest possible portion of it be preserved in its primitive wilderness condition, its value and its classification as a museum of nature and hence as a National Park being dependent upon such preservation. The boundaries of the proposed park should be so drawn as to exclude all railroad development [emphasis in original].”

As Anthropologist Laura Ogden has noted, naturalists who celebrated the biological values of the Everglades tended to devote little attention to the local whites who lived, hunted, or fished there, viewing their presence as, in a sense, transgressive. Naturalists were somewhat more likely to acknowledge the Seminole Indians’ place in the Everglades, but often this mainly served to emphasize the remoteness of the area and its need for protection. Early on, the House of Representatives showed some concern for the claims of the Seminoles in the Everglades. When the Everglades bill was reported out of the House Committee on Public Lands on January 17, 1931, the authorizing act had been amended as follows:

> Provided further, that nothing in this act shall be construed to lessen any existing rights of the Seminole Indians which are not in conflict with the purposes for which the Everglades National Park is created.\(^{146}\)

This language remained in all subsequent versions of the bill and in legislation that finally passed in May 1934.

Director Albright did what he could in the early months of 1931 to reassure conservationists that the NPS was committed to the preservation of the wilderness areas of the Everglades. Albright believed that Coe’s “flood of propaganda and unhappy approach” were counterproductive. Robert Sterling Yard kept up the pressure by writing twice to Secretary Wilbur, which annoyed Director Albright, who was not pleased that Yard went over his head.\(^{147}\) Albright wrote Henry Baldwin Ward to uphold the principle that public enjoyment was compatible with preservation: “We have never had any intention, if the Everglades come [sic] to us, of opening up its wilderness areas, those great sections known as White Water Bay, the Harney River country, and the Shark River country.” By reconstructing the Ingraham Highway, Albright believed that “perhaps 25 per cent” of the park would be accessible to visitors. He relied on the wet and forbidding nature of the rest of the area to deter visitation and preserve it intact. He pointedly asked, “How could we ask the people to pay taxes to maintain a great area like this if some provision is not made for everybody to get a glimpse of what the park is?”\(^{148}\)

By early 1931, it was abundantly clear that the Florida supporters of the proposed park had no interest in a designation other than a national park and would have scant success in raising land-acquisition funds for anything but a national park. This was acknowledged by Albright, Yard, Ward, and others. With national park status a given,

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146 Chronology, Everglades National Park – Florida, EVER 22965.
147 Albright seemed personally affronted by Yard’s attitude, writing that is was “a reflection on the Service and myself in its intelligent planning.” Director Albright to H. C. Bumpus, Mar. 14, 1931, EVER 42242.
conservationists turned instead to attempting to amend the authorizing legislation to include explicit protection of wilderness values. Already on January 22, 1931, Yard had met with Congresswoman Owen and another Florida representative, Herbert J. Drane, to propose adding language to the draft legislation that would prohibit any through highways in the park, ban any public road running north from Cape Sable, and exclude from the boundary any “areas whose primitive quality had been impaired.” Owen was open to these changes, but the end of the last session of the 71st Congress was rapidly approaching, and Director Albright feared that any attempt to amend the bill would compromise its chances of passage. Yard also shared his proposed amendments with Frederick Law Olmsted Jr., who agreed with their purposes, but questioned the wisdom of attaching them to the authorizing legislation. As it happened, opposition from a group of congressmen led by New York’s Fiorello LaGuardia killed the bill in the House after it had passed in the Senate. The reasons for LaGuardia’s opposition are not clear, but Olmsted, for one, believed that they were political in nature and not related to the bill’s merits. Olmsted did not lament the bill’s failure, believing a delay would give “an excellent opportunity for further study and for attempting to draft a more nearly adequate statement . . . of the functions and purposes appropriate to . . . the area.” He expressed a preference for a positive statement of the park’s functions and purposes rather than burdening the authorizing act with specific prohibitions.

With the installation of the new 72nd Congress in March 1931, Congresswoman Owen and Senator Fletcher again introduced bills (H.R. 5063 and S. 475) to authorize Everglades National Park and asked for formal recommendations on them from the secretary of the interior. Interior pronounced itself in favor in December 1931.

The Olmsted-Wharton Report

In an effort to get an authoritative judgment and put to rest any doubts about the objectivity of previous assessments of the Everglades, the NPA in October 1931 established a subcommittee of its committee on new national park projects. The subcommittee consisted of Frederick Law Olmsted Jr. and William P. Wharton. Wharton had long been associated with the Massachusetts State Park System and was on the boards of the National Association of Audubon Societies and the American Forestry Association. Olmsted and Wharton spent ten days in the Everglades region, beginning

149 LaGuardia was an “Independent Republican” who frequently opposed the initiatives of Republican President Herbert Hoover and his secretary of the interior.


151 H.R. 5063 and S. 475.
Figure 3-9. Cover of Olmsted and Wharton report
January 4, 1932. They viewed the area from a Goodyear blimp and a small airplane and spent a full week in boats, working their way from Key Largo to Everglades City, with excursions into Alligator Lake and Whitewater Bay, the upper reaches of the Shark River, and the lower reaches of Rogers River. The two walked extensively over the Cape Sable area, visited Royal Palm State Park, and spoke with many fishermen, guides, hunters, and trappers. Olmsted and Wharton submitted their report to the NPA board of trustees, which adopted it on January 18, 1932. The NPA sent the report to the Senate, which arranged to have 6,000 copies printed (figure 3-9, Cover of Olmsted-Wharton report). Excerpts from the report appeared in the March 1932 issues of American Forests and the Bulletin of the Garden Clubs of America. Mrs. William A. Lockwood, president of the Garden Clubs of America, arranged for the printing of 4,000 copies of the excerpted article, which were distributed to all NPA members and other conservationists.152

Olmsted and Wharton concluded that the Everglades had extensive areas that had all of the inspirational qualities of existing national parks and was so different from other parks “as to have a special force of novelty.” They deemed it “highly desirable” that a national park be established. The two believed that the coastal mangrove forests and “the abundance of many species of wild bird life not commonly found in other parts” of the U.S. were particularly noteworthy. Although unwilling to advance specific recommendations about future park development, they were firm in believing “that the primitive character of the region should be protected to the utmost.” Because of the “intricate and unstable” ecological balance in the area, Olmsted and Wharton urged “prolonged and intensive study by . . . botanists, zoologists, and geologists” before any plan of park development was adopted. It is interesting to note that they understood the importance of the flow of water to the proposed park from north of the Tamiami Trail and urged that a way be found to keep that area from being drained, if it were not included as part of the park. In sum, Olmsted and Wharton gave a ringing endorsement to the Everglades park project.153

In the 72nd Congress, the Everglades National Park bill again easily passed in the Senate but languished in the House. The country was three years into the Great Depression, and many believed that keeping a tight rein on government spending would help to get the economy going again. On November 8, 1932, the Democratic ticket of Franklin D. Roosevelt and John Nance Garner won the presidency in a landslide, winning 472 electoral votes to Herbert Hoover’s 59. Garner, who was still Speaker

152 The Proposed Everglades National Park: Report of a Special Committee of the National Parks Association Appointed to Study All the Features in Connection with the Proposed Everglades National Park in the State of Florida, Sen. Doc. No. 54, 72nd Cong., 1st sess. (Washington, D.C.: GPO, 1932); Minutes of NPA board of trustees meeting, Jan. 18, 1932, Minutes of NPA annual meeting, Apr. 23, 1932, NPCA papers, series 1, box 13.
153 The Proposed Everglades National Park: Report of a Special Committee, 1, 5-8, 11.
of the House until his inauguration as vice president, held the key to the Everglades bill’s chances in the House. Outgoing Secretary of the Interior Wilbur visited the Everglades in late December 1932. He reiterated his strong support for a park in the Everglades and urged Congress to authorize it. Ernest Coe marshaled all the forces of the Everglades National Park Association and its allies to lobby for passage. In the waning hours of the 72nd Congress on March 4, 1933, Speaker Garner refused to allow the Everglades bill to come to a vote, writing to Florida Congressman Herbert J. Drane “in view of the fact that our national government is confronted with a deficit of huge proportions, I do not feel that it would be wise to enact this legislation at this time.”

Once again, the Everglades bill had failed, but not on its merits.

In the spring of 1932, while the Everglades bill was pending in Congress, Ruth Bryan Owen had faced a challenge in the Democratic primary election from West Palm Beach attorney J. Mark Wilcox. In the Solid South of this period, the Republican Party had few adherents, and the winner of the Democratic primary was virtually assured of victory in the general election. Ernest Coe somehow got the idea that the Everglades bill would have a better chance of passage if someone other than Owen sponsored it. Director Albright assured Coe “if Mrs. Owen can not get it through then it can not be gotten through.” Coe apparently continued to insinuate that Owen was letting her ego get in the way of the bill’s passage, and Albright wrote to Associate Director Cammerer, “After I wrote him [Coe] the last time, he cracked Mrs. Owen again. I am pretty nearly thru with him.” Although she had significant support from Florida newspaper editors and enthusiastic crowds at her campaign rallies, Owen lost to Wilcox by 12,000 votes in June 1932. She was surprised and embittered by her defeat and accused Coe of permitting rumors to circulate that she had “insisted on claiming credit and pushing my name forward to the detriment of the [Everglades National Park] bill.” Coe wrote Albright that Owen “had used unfortunate judgment,” but that he in “no way consciously aided in her defeat.” Coe’s attacks on Owen more likely revealed his poor judgment. In the end, Owen’s performance on the Everglades bill was not a factor in the election. Wilcox had made the repeal of prohibition his number one issue, and Owen’s unwillingness to compromise on that issue led to her defeat. Once in office, Wilcox proved a strong supporter of the Everglades park project.

154 “Florida Park Tour Takes Wilbur on 1,200-mile Trip,” Baltimore Sun, Dec. 28, 1932; “Mrs. Owen Thanks Supporters as Term Ends, Cocoa Tribune, March 9, 1933. The Sun noted that “the proposed Everglades National Park in Florida holds a record for official visitations, particularly in the winter time.”

The Final Push for Authorization

When President Roosevelt took office in March 1933, he enjoyed tremendous Democratic majorities in both houses of the 73rd Congress. The advantage was 23 votes in the Senate and nearly 200 votes in the House of Representatives. Roosevelt was on record as a firm supporter of a national park in the Everglades, as was his secretary of the interior, Harold L. Ickes. Not far into the Roosevelt Administration, the NPS would have a new director, as well. Horace Albright had achieved his goals of reorganizing the agency and having it assume the administration of battlefields and other historic sites from the War Department. Albright announced that he would retire. Associate Director Arno B. Cammerer took over as director on August 10, 1933.156

Once the new 73rd Congress was in place, Senator Fletcher again introduced the Everglades authorization bill and Congressman Wilcox introduced a companion measure in the House (H.R. 2837). On May 29, 1933, the Senate bill passed unanimously. In June 1933, the Bureau of the Budget notified the secretary of the interior that it would approve the Everglades bill only if it were amended to provide that no federal funds would be expended on “administration, protection, or development” of the park for five years from the date of enactment. Congressman Wilcox reluctantly agreed to this amendment in order to obtain committee approval. As reported out of the Committee on Public Lands on June 14, 1933, H.R. 2837 contained the five-year ban on federal outlays and the clause protecting the rights of the Seminole Indians, but it did not contain any mention of wilderness values.157

Discussion among conservationists on how best to protect the flora and fauna of the Everglades had continued after the authorizing legislation failed in the 72nd Congress. Committees of both the National Parks Association and the American Forestry Association (AFA) were at work on suggested amendments to the bill as introduced in the new 73rd Congress. The AFA committee consisted of Dr. John C. Merriam, Mr. George D. Pratt, and Mr. Ovid Butler. Members of the NPA committee were Dr. Merriam, William P. Wharton, Frederick Law Olmsted Jr., and Wallace W. Atwood. In essence, the leading lights of the American conservation community were looking for language that would go beyond the NPS Organic Act in ensuring that the NPS would protect the wilderness values of the Everglades.

Wallace Atwood proposed a rather long-winded amendment in April 1933:

156 The position was first offered to Newton Drury, executive director of the Save-the-Redwoods League, but he declined. Swain, 230-232.
A considerable part of the Everglades area might be shut off from all but the most exceptional use or penetration. Other areas could be open for entrance by special canoe paths or trails, largely or entirely under guidance of regularly authorized persons. Carefully selected areas so situated as to give a view of features of great interest would be entered by good roads and well constructed trails open to all visitors without guides, but under stringent regulations as to injury of plants and animals. The regions open to the whole public should be chosen for their special interest, and the approaches carefully planned on the basis of biological and landscape studies.\textsuperscript{158}

Olmsted, while in favor of a statement of general policy regarding preservation of wilderness conditions in the legislation, believed there was not nearly enough scientific knowledge of the area to justify “detailed and specific limitations” on development in the law [Olmsted’s emphasis].\textsuperscript{159} By July 1933, the NPA committee was proposing:

> It is the intention of Congress that the greater portion of the Everglades Park shall be permanently preserved as a wilderness area, and that no development of the project or any plan for the entertainment of visitors should be undertaken which will interfere with the preservation of the unique flora and fauna, and the essentially primitive natural conditions now prevailing in this area.\textsuperscript{160}

This version clearly shows the hand of Olmsted, who preferred general, positively stated guidelines, rather than specific prohibitions. With some minor edits, this became Section 4 of the authorizing act (see appendix A for the full text of the act). It is of interest that Olmsted by this point was convinced that Coe’s proposed scenic highway along the coast was a mistake, believing it would introduce “an unbroken zone of sophistication completely interrupting the continuity of primitive conditions.”\textsuperscript{161}

The House Committee on Conservation of Wild Life held hearings on the Everglades bill on March 19, 1934. The AFA testified that its support of the bill was contingent on the addition of Section 4. The AFA was backed up in this stance by the NPA, the Garden Clubs of America, and Dr. Henry Baldwin Ward. Director Cammerer and Secretary Ickes soon gave their approval to Section 4. Both believed that the section was not needed, viewing it as nothing more than a restatement of the principles of the NPS Organic Act. They also surely understood that there would be howls of protest from the conservation community if the language were not included. In addition, Director Cammerer verbally consented to the appointment of “representatives of interested organizations as a committee advisory to the National Park Service on

\textsuperscript{158} Wallace W. Atwood to NPA committieemen, Apr. 10, 1933, JCM papers, box 14.
\textsuperscript{159} Frederick Law Olmsted Jr. to William P. Wharton, Apr. 11, 1933, JCM papers, box 137.
\textsuperscript{160} Ernest F. Coe to Augustus E. Houghton, July 11, 1933, Gov. Sholtz papers, box 40.
\textsuperscript{161} Frederick Law Olmsted Jr. to Ovid Butler, May 1, 1933, JCM papers, box 137.
selection of lands to constitute the national park.”\footnote{162 It took more than ten years for the state of Florida and the DOI to agree on a minimum park boundary. By then, both the NPS and the NPA had new leaders, and Cammerer’s commitment to an advisory committee seems to have been forgotten.} Some legislators kept up their opposition to the end. Congressman Allen Treadway, a Massachusetts Republican, quipped, “You can’t get there any other way [than swimming]. And if you swim, there will be alligators hanging on to your legs, and snakes after your body.” In spite of these aspersions, the Everglades bill passed the House on May 24, 1934. On May 30, 1934, President Roosevelt signed into law the act authorizing the eventual establishment of Everglades National Park as P.L. 73-267, with a maximum boundary embracing 2,164,480 acres (3,382 square miles) (Figure 3-10, pen used by Roosevelt to sign 1934 act).\footnote{163 G. H. Collingwood, American Forestry Assn., to Mrs. William A. Lockwood, Garden Clubs of America, Mar. 28, 1934, JCM papers, box 70; Dir. Cammerer to Asst. Solicitor Poole, Apr. 2, 1934, SOI Ickes to Louis R. DeRouen, Chair, House Committee on Public Lands, Apr. 9, 1934, NARA II, RG 79, NPS CCF, boxes 232, 233; P.L. 73-267; Sen. Duncan U. Fletcher to Augustus Houghton, May 28, 1934, Houghton papers, box 23; Minutes of NPA executive committee meeting, Apr. 5, 1934, NPCA papers, series I, box 13.}

Ernest F. Coe was in Washington almost continuously from February 18 to June 30, 1934, consulting and lobbying Congress. At times, Director Cammerer believed that Coe was doing more harm than good by personally lobbying legislators. At one point he wrote Coe that “we do not think it advisable to broadcast letters of this sort to Congress at this time. All is going well with the project and we are anxious that it be not complicated as a result of propaganda.” Coe nonetheless buttonholed legislators in the Capitol’s elevators and in late March sent a three-page letter to every member of Congress. Coe had incredible energy and perseverance, but failed to understand that at some points in the legislative process, silence was the best tactic. Shortly after the act’s passage, former NPS Director Horace Albright paid tribute to Coe in these words, “[W]hen the history of this great new park is written your name must be at the head of the list of those who worked for its establishment. I have never seen such devotion to a cause as you lavished on the preservation of the Everglades.” Coe, however, was not entirely satisfied. Three months after the law passed, in August, he wrote Director Cammerer pleading to have “Tropic” restored to the name of the park. Associate Director Arthur E. Demaray gave a patient reply, citing five reasons why this was not possible, among them that it would require another act of Congress.\footnote{164 Dir. Cammerer to Ernest F. Coe, Feb. 2, 1934, NARA II, RG 79, NPS CCF, box 922; Ernest F. Coe Report to ENPA Executive Council, Nov. 1, 1934, Dir. Horace Albright to Ernest F. Coe, July 9, 1934, Gov. Sholtz Papers, box 40; Ernest F. Coe to Dir. Cammerer, Aug. 1, 1934, Acting Dir. A. E. Demaray to Ernest F. Coe, Aug. 8, 1934, NARA II, RG 79, NPS CCF, box 233; “House Votes to Make U.S. Park Out of Florida ‘Alligator Farm,’” Washington Post, May 25, 1934.}
Chapter 4: The Long and Winding Road to Park Establishment

With the passage of the authorizing act for Everglades National Park in May 1934, the scene of action shifted from Washington to Florida. Section 1 of the act stipulated that no federal funds were to be appropriated for land acquisition. Land could be acquired only by donation from the state or from private parties. Additionally, the secretary of the interior would not accept land for the park on a piecemeal basis. The park would be considered established only when the state had assembled sufficient acreage that in the aggregate was acceptable to the secretary for administration as a national park. About 20 percent of the land within the maximum authorized boundary was state owned. Among the state’s holdings were 99,200 acres in Monroe County that had been set aside in 1917 as a reservation for the use of the Seminole Indians. Some 50,000 acres already belonged to the federal government. President Franklin Roosevelt issued an executive order in October 1934 removing all federally owned land within the boundary from sale or settlement, so that it would remain available when the park was ultimately established. The Model Land Company, the Collier Corporation, and the Chevelier Corporation owned the great majority of the private holdings, but there were hundreds of small holders. The typical procedure for acquiring private land for a national park was for a state to set up a commission with authority to accept donations and purchase land. This procedure had been followed in acquiring land for Great Smoky Mountains National Park on the Tennessee/North Carolina border and Big Bend National Park in Texas. The NPS, the Everglades National Park Association (ENPA), and other park proponents expected the Florida legislature to establish such a commission at an early date.

Park proponents were optimistic about the prospects for land acquisition, in large part because of the attitude of Florida’s governor, David Sholtz, who held the office from January 1933 to January 1937. Sholtz was a Daytona Beach lawyer with little political experience who had made many contacts as head of the Florida Chamber of Commerce. He was a long-time park advocate and had served as vice president of the ENPA. Ernest Coe and others were also confident that wealthy individuals, both from Florida and other states, would make substantial cash donations for land acquisition. Sholtz succeeded in getting several park-related laws enacted by the 1935 session of the state legislature. One act, which amended a 1929 law that had never gone into effect, established the Everglades National Park Commission (Sen. 958) and a second

166 Executive Order 6883, Oct. 22, 1934, CP, EVER 22547.
appropriated $25,000 for the first two years of the commission’s operations, ending June 30, 1937 (Sen. 955).  

A separate act authorized the trustees of the Internal Improvement Fund (IIF) to convey to the U.S., at their discretion, any state-owned land for inclusion in the park. This law further authorized the IIF to exchange land it owned outside the park boundary for privately owned lands within the boundary (Sen. 957). Once an exchange was completed, the IIF could then convey the exchanged land to the federal government. Another act (Sen. 954) empowered the IIF to eliminate the Seminole Indian Reservation in Monroe County, as soon as it had provided a tract “of approximately equal size and of suitable character” north of the proposed park boundary (figure 4-1, 1917 and 1937 Seminole reservations).  

Finally, the legislature passed a law declaring the area within the authorized park boundary to be a wildlife preserve (Sen. 956). No funds were provided for marking or patrolling the area, however, so this act was essentially unenforceable.  

Under the act of June 1935, the Everglades National Park Commission (ENPC) was to have 12 members, all Florida residents, appointed to four-year terms by the governor. The members were to elect a chairman from among their ranks. In addition to the chairman, there was an executive chairman, who was to be a commission member selected by the governor. The governor was also to select an executive secretary, who did not have to be a commission member. The executive chairman was allowed to hire a secretary. Three salaried positions were mentioned in the act: the executive chairman (not to exceed $4,000 a year), the executive secretary (not to exceed $2,500 per year), and the secretary to the executive chairman (not to exceed $1,680 per year). The commission had authority to fill other posts, within the limits of its appropriations. The commission members received no pay, but were entitled to reimbursement for travel expenses.  

Ernest Coe apparently suggested to Governor Sholtz the idea of having a chairman, which was conceived as an honorary position, and an executive chairman. Coe saw the chairman as being the public face of the commission, promoting the project at every opportunity, while the executive chairman had day-to-day responsibility for the commission’s work. The legislature authorized the commission to take title to any lands that the secretary of the interior might designate for the national park and gave

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167 The Everglades National Park Commission had been previously authorized by legislation passed in 1929, but the operation of the law was suspended until Congress passed its 1934 authorizing act. Until 1969, the Florida legislature met only in odd-numbered years. Sholtz had to wait until the 1935 session to make changes to the commission’s powers and organization and ask for an appropriation for its operations.  

168 The legislature in 1937 established a 100,000-acre reservation in Broward County for the Seminoles. A more detailed discussion of the effect of the park on the Seminole Indians appears below in chapter 19.  


170 S. 958, June 7, 1935.
Figure 4-1 1917 and 1937 State of Florida Seminole Reservations
it the power of eminent domain. The 1929 act had empowered the ENPC to absorb the ENPA, but the 1935 act directed the commission to work in cooperation with the association. It was apparent in 1935 that the association would be able to undertake activities that a state agency could not, so that it made sense for it to continue with a separate identity.¹⁷¹

The Everglades National Park Commission

Even before the legislature had defined the powers of the Everglades National Park Commission and funded it, Governor Sholtz was seeking input on its composition. Ernest Coe expected to be named executive chairman and was among those who suggested names to the governor for other members. Governor Sholtz appointed the following commission members on April 30, 1935:

- Ernest F. Coe, landscape architect and executive chairman, ENPA, Coconut Grove
- Lorenzo A. Wilson, fertilizer company executive, Jacksonville
- D. Graham Copeland, Collier Corporation executive, Everglades City
- J. W. Hoffman, Model Land Company executive, St. Augustine
- May Mann Jennings, clubwoman and activist, Jacksonville
- Norberg Thompson, commercial fisherman, Key West
- William H. Porter, bank officer and Monroe County Commissioner, Key West
- Thomas J. Pancoast, real estate and hotels, Miami Beach
- Mrs. T. V. Moore, clubwoman, Miami
- A. L. Cuesta Jr., cigar manufacturer, Tampa
- John O. Shares, hotelier, Sebring
- Hamilton Holt, president, Rollins College, Winter Park

Sholtz appointed Coe executive chairman, and the commission members later elected Thomas Pancoast as chairman. Coe recommended J. S. Alexander, a Tampa biologist who had worked in Yellowstone National Park, as executive secretary, and the governor made that appointment. Coe had advised Sholtz not to appoint anyone to the commission who owned land or represented land owners within the authorized boundary. The governor must have felt that such a course was politically impossible, because three of his appointments fell into that category. The Model Land Company, represented by Hoffman, owned 136,466 acres; the Collier Corporation, represented

¹⁷¹ Ernest F. Coe to Lorenzo A. Wilson, CP, EVER 22382.
by Copeland, owned 151,000 acres; and Mrs. Jennings, through the Dade Muckland Company, owned 2,170 acres.172

As of May 1935, Ernest Coe was executive chairman of both the ENPA and the ENPC. As a private association, the ENPA was committed to the rapid establishment of an Everglades National Park with the maximum boundary specified in the 1934 federal law. As an official agency of the State of Florida, the ENPC had the responsibility of representing all of the state’s people, ensuring the wise use of state funds, and reconciling competing interests. Many of those competing interests—the tourist industry, land owners, commercial fishermen, and conservationists—were represented on the ENPC. Temperamentally, Ernest Coe was much better suited to the role of high-principled, uncompromising park proponent than the role of executive chairman of a state commission that had to satisfy multiple constituencies. His position with the ENPC also demanded administrative abilities and diplomatic skills that were not Coe’s strong suits.

The ENPC placed a major emphasis on the benefits to Florida’s tourism industry of a national park in the Everglades. The park’s location at the toe of the Florida peninsula meant that motorists visiting the park would have to travel the length of the state coming and going, scattering dollars among hotel and restaurant owners along the way. A map distributed by the commission explicitly made that very point (figure 4-2, ENPC map touting tourism).

The first two major tasks confronting the ENPC were recommending a boundary for the park and preparing abstracts of title for the private holdings within that boundary. A final decision on an acceptable boundary was in the hands of the secretary of the interior, but the NPS expected to work closely with the ENPC in determining a boundary that would both meet NPS requirements and be politically acceptable in Florida. In Secretary Wilbur’s December 1930 letter to Congress, he expressed some doubt about whether acreage north of the Tamiami Trail should be included in the park, and Director Horace Albright expressed similar uncertainty in his correspondence. In part this was because the NPS had not studied the attributes of the 2 million acres in Coe’s proposed boundary. The Wilber letter described the boundary that accompanied his report as “a very definite starting point” and indicated that a satisfactory minimum boundary might embrace 80 percent of the 1.3 million acres included in his proposal.173 The preparation of abstracts of title was the first step in the process of land acquisition. The abstracts were to be used in subsequent appraisals of land and negotiations with land owners.

Ernest Coe waited six months to hold an organizational meeting of the ENPC. May Mann Jennings, for one, feared that he was letting momentum slip away.\(^{174}\) On January 15, 1936, nine of the twelve members met in Miami, electing Thomas Ponceast as chairman and Lorenzo Wilson as vice chairman. The commission established four committees, with the following membership:

\(^{174}\) May Mann Jennings to Ernest F. Coe, Oct. 23, 1935, CP, EVER 19886.
Finance Committee: William R. Porter, Lorenzo Wilson, A. L. Cuesta Jr., Norberg Thompson, John O. Shares
Lands and Boundaries Committee: D. Graham Copeland, J. W. Hoffman, William R. Porter
Legislation Committee: John O. Shares, May Mann Jennings, D. Graham Copeland
Public Relations Committee: Dr. Hamilton Holt, Mrs. T. V. Moore, Norberg Thompson

Coe and Pancoast were made ex-officio members of all committees. The finance committee was responsible for handling cash donations, government appropriations, and disbursements to land owners. The lands and boundaries committee had a key responsibility, since it was already apparent that some Floridians would object to the maximum boundary in the 1934 law. Placing representatives of the two largest land owners, the Model Land Company and the Collier Corporation, on this committee was almost a guarantee of future controversy.

There were some minor changes in commission members and staff in the first two years of its operation. Lorenzo Wilson died in September 1936 and was replaced by Frank Dominick of Miami Beach. President Holt of Rollins College resigned after the December 1936 ENPC meeting and was replaced by Michael Sholtz of West Palm Beach, the governor’s father. Coe in June 1936 asked Governor Sholtz to remove Alexander as the commission’s executive secretary. Alexander was actively campaigning in the Democratic primary election, and Coe believed the commission needed to be above politics. Alexander was persuaded to resign, and in August 1936, Sholtz appointed Benjamin Axleroad, a Miami lawyer, as a replacement. Axleroad later recalled that he found Coe as a boss “like the Pharoahs [sic] of Egypt.”

The work of preparing abstracts of title began in August 1935 and continued for several years. As chief abstractor, the commission hired J. H. Meyer, who proved energetic and efficient. Title companies in Dade County provided access to their files without charge, and the ENPC was able to tap almost $9,000 in Federal Emergency Relief Administration and Works Progress Administration funding for salaries. The ENPC employed four typists, mostly occupied with the title work; critics were not shy in pointing out that the state attorney general’s office managed to get by with just two. Although the abstracts were a necessary first step, criticism was soon being leveled at the commission for failing to mount a fund-raising campaign for land purchases. The main reason that the commission failed to move rapidly into fund-raising activities

175 Minutes of Organization Meeting, ENPC, Jan. 15, 1936, CP, EVER 19420b.
176 Ernest F. Coe to Gov. Sholtz, June 14, 1936, Ernest F. Coe to ENPC members, Aug. 18, 1936, Ernest F. Coe to ENPC members, Dec. 31, 1936, Meeting of ENPC, Apr. 4, 1937, 15, Meeting of ENPC, Jan. 11, 1937, CP, EVER 19463, EVER 19382b, EVER 19390, EVER 19427a, EVER 19391b; Benjamin Axleroad to Spessard Holland, Oct. 23, 1940, SLH papers, box 95.
was the presence of sharp differences between Ernest Coe and the majority of the commission on the question of an acceptable park boundary.\footnote{Ernest F. Coe to Gary D. Landis, Fla. AG, Mar. 4, 1937; May Mann Jennings to Gov. Cone, June 5, 1937, Gov. Cone Papers, box 30.}

**Determining a Minimum Acceptable Park Boundary**

Director Cammerer had dispatched an NPS team to Florida to study the boundary question in December 1934. It consisted of Harold C. Bryant, assistant director, Roger W. Toll, Yellowstone superintendent, Oliver G. Taylor, deputy chief engineer, and George M. Wright, chief of the wildlife division. The team spent five days in the area and made its report to Cammerer on January 14, 1935. Its basic conclusion was that “only an approximation of the maximum boundary as set can fulfill conservation requirements and consequently approval of any material reduction in size must be avoided.” The team emphasized the need to include within the park the sizable portions of Key Largo and Old Rhodes Key and acreage north of the Tamiami Trail specified in the original maximum boundary. As to the latter area, it noted that “[a]ny commercial development of this area involving drainage would injure the region to the south.” The team recommended excluding from the park the rights-of-way of the Florida and East Coast Railway and the Key West Highway (State Route 4A at the time, later U.S. 1). The report noted that “minor adjustments to the boundary lines” would be acceptable. Cammerer discussed the team’s recommendations with representatives of major conservation organizations. Secretary Ickes then wrote to Governor Sholtz on April 3, 1935, stating that the original boundary, encompassing 2,000 square miles, subject to minor adjustments, would be acceptable to the federal government. Ickes urged the state to proceed rapidly in acquiring the necessary lands for the park.\footnote{Harold C. Bryant to Dir. Cammerer, Jan. 14, 1935, CP, EVER 22200; Dir. Cammerer to Ernest F. Coe, Jan. 15, 1935, Gov. Sholtz papers, box 41.}

The Lands and Boundaries Committee of the ENPC convened an open meeting in Miami on June 27, 1936, to get public input on the boundary issue. D. Graham Copeland, the committee chair, presided and Ben H. Thompson, special assistant to the NPS director, was present. The meeting was well attended, drawing many landowners, commercial fishermen, and representatives of sportsmen’s groups. Attendees raised several strong objections to the maximum boundary. The Izaak Walton League of Dade County, representing its 400 members, wanted the area north to the Tamiami Trail excluded as valuable hunting grounds and all of Florida Bay excluded because of its worth to commercial and sportfishermen. The league said it could support only a much smaller park, of about 930 square miles, confined entirely to the mainland. Fearing for their livelihoods, spokesmen for the commercial fishing and
sponging industries wanted none of the waters of the Gulf or Florida Bay included in
the park. William Albury, attorney for the Monroe County Board of Commissioners,
presented the county government’s position that none of the keys should be part of
the park. He pointed out that the county had agreed to give up all of its acreage on
the mainland, and argued that if portions of Key Largo were also made part of the
park, the tax burden on the rest of the county would be onerous. Land owners were
divided in their opinions. Some were willing to sell to the government, but all were
concerned about getting full and fair value for their property. The Florida Federation
of Garden Clubs testified in favor of the original park boundary. Following the public
meeting, the Lands and Boundaries Committee began the preparation of report to the
full ENPC.179

The vehement opposition to the maximum boundary in Monroe County present-
ed a serious problem for the park project. Already in April 1937, Director Cammerer
had attempted to reassure the Monroe County Fishermen’s Association, writing:

The National Park Service has no intention of imposing regulations relating to
commercial and sport fishing within the Everglades National Park area, other than
those contained in Florida State laws, or county laws in the event the latter exist.180

ENPC member D. Graham Copeland (chair of the Land and Boundaries Com-
mittee) “preached Mr. Cammerer’s letter from one end of the County to the other,”
hoping to quiet protests from one thousand commercial fishermen. Coe met with the
Monroe Country Commissioners, trying to persuade them that any tax revenues lost
by the inclusion of Key Largo acreage in the park would be more than made up by
the increased tax revenues that would come from the development of adjacent county
lands once the park was attracting one million tourists a year.181 Coe had difficulty in
believing that there could be honest differences of opinion over what was best for
Florida regarding the park. He tended to believe that opposition to his ideas originated
either in ignorance or purely selfish motives. Coe therefore spent a great deal of time
trying to explain again and again the facts that he believed made his conception of the
park boundary the only correct conception. In this, he tried the patience of many and
alienated not a few.

The conflicts over a boundary and the problematic dual role of Ernest Coe with
the ENPC and the ENPA dominated the second meeting of the full ENPC in De-
ember 1936. Copeland maintained that he had attempted to get an earlier meeting to

179 Minutes, Meeting of Lands and Boundaries Committee, ENPC, June 27, 1936, CP, EVER
19423.
180 Dir. Cammerer to Chester Thompson, Monroe County Fishermen’s Association, Apr. 28,
1937, NARA II, RG 79, NPS AF, box 919.
181 Meeting of ENPC, Apr. 3, 1937, 49, CP, EVER 19427a; “Everglades Park Denied Keys Area,”
Miami Herald, June 17, 1936.
present the Lands and Boundaries Committee report, which was prepared in October, but that Coe put him off. The committee’s report contended that a reduction in the maximum boundary was essential to secure the cooperation of “powerful interests in the social, business and political worlds.” Specifically, the report recommended the exclusion of 45,799 acres in the Turner River area of Collier County, arguing that this was valuable as agricultural land and that the river held great promise as an avenue of navigation. In addition, the committee believed that the Turner River country offered nothing to a visitor that was not present in river valleys farther to the south. In Monroe County, the report proposed excluding all “bays, water bottoms and islands, amounting to 27,644 acres.” The committee fully supported the political leaders of the county on this. In Dade County, the report recommended a reduction of 115,200 acres. This reduction comprised marl lands in the eastern portion of the proposed park that could be drained for agriculture. The committee argued that even with the reductions, the essential natural features of the area would be included in the park. In presenting the report to the full ENPC, Committee Chair Copeland stressed that the 1930 letter from the Secretary of the Interior had indicated that something like 80 percent of the full 2,000 square miles could well be acceptable for establishing the park.182

D. Graham Copeland, as chair of the Lands and Boundaries Committee, led the discussion of the committee’s report. Copeland sharply criticized the actions of Ernest Coe on behalf of the ENPA, which he believed undercut the position of his committee. Copeland argued that while Coe kept the ENPC’s Lands and Boundaries Committee at arm’s length, his ENPA pumped out propaganda favoring the maximum park boundary and published gross underestimates of the cost of acquiring the private holdings. Copeland’s charges were not without foundation. Coe had written confidentially to Director Cammerer in June 1936 to warn him that the Lands and Boundaries Committee wanted a “radical curtailment” of the boundary. He thought that there was “a definite set up” among the Collier Corporation, the Model Land Company, and Key Largo land owners to whittle down the boundary. Hoping to circumvent Copeland, Coe suggested that the NPS work with the Roosevelt administration to approach Barron Collier directly. During the December 1936 meeting, May Mann Jennings supported Copeland and suggested that Coe needed to give up one of his positions. She was eager to get the boundary questions resolved so that fund-raising for land acquisition could begin. She also noted that approval of a minimum boundary would not prevent additional tracts being added to the park in the future. In a remark clearly directed at Coe, Mrs. Jennings observed, “We can’t dream—we have got to face realities.” After considerable discussion, the commission voted by a margin of eight to three to have the Lands and Boundaries Committee report presented to the NPS as the basis for

discussions on an acceptable boundary. The no votes came from Coe, Pancoast, and Dr. Holt.183

In January 1937, an NPS delegation headed by Director Cammerer went to South Florida to make further investigation of the boundary issue and to meet with members of the ENPC. George A. Moskey, assistant director, lands and use, Dr. H. C. Bryant, assistant director, research and education, and Ben H. Thompson, special assistant to the director, were the other members of the delegation. Augustus S. Houghton, a prominent conservationist associated with the Camp Fire Club and a long-time friend of Cammerer, was also part of the team. The NPS group spent the better part of a week touring the Everglades area, including three days in and around Turner River. Director Cammerer then attended a meeting of the ENPC on January 11, 1937.184

At the meeting, Director Cammerer led off by describing the process of land acquisition in other park projects. He stressed that a decision on a minimum boundary was critical, noting that the ENPC had “not gathered a single dollar of funds” for land acquisition. He defined the goal as deciding on “the smallest workable unit and get[ting] funds for it.” Turning to specifics, Cammerer pushed for the inclusion of a portion of Key Largo, believing that an example of key geology and coral reefs needed to be part of the park. He indicated that the NPS could give up the Turner River Country, if it was assured of having the Lopez River and some shell mounds lying between Turner River and Lopez River. Cammerer had previously made this commitment to Barron Collier, who had strong ties to the Roosevelt Administration. He also seemed willing to compromise on lands along the eastern boundary on the mainland, stating that “we don’t want to take any land that is more valuable for agricultural purposes.” The director went out of his way to reassure commercial fishermen and spongers that the NPS would not interfere with their activities. At this point, William Porter, who was a Monroe Country Commissioner, pointed out that fisherman had been greatly alarmed when the first superintendent of Fort Jefferson National Monument had closed its waters to fishing.185 Cammerer said he would look into that question, but that it should not be viewed as a precedent for the Everglades situation. The director thanked the Lands and Boundaries Committee for its work and said he was now prepared to return to Washington and make a recommendation to Secretary Ickes on a minimum acceptable boundary.186

183 Meeting of ENPC, Dec. 2, 1936, CP, EVER 19387a; Ernest F. Coe to Dir. Cammerer, June 2, 1936, CP, EVER 20404; Ernest F. Coe to Dir. Cammerer, June 29, 1936, CP, EVER 20416.
184 Minutes of Meeting of ENPC, Jan. 11, 1937, CP, EVER 19391b.
185 President Franklin D. Roosevelt established Fort Jefferson National Monument on January 4, 1935. On October 26, 1992, the fort and surrounding areas were redesignated the Dry Tortugas National Park.
186 Minutes of Meeting of ENPC, Jan. 11, 1937, CP, EVER 19391b, 9, 12-13, 29-33.
At the January ENPC meeting, Copeland again complained of the activities of the ENPA, stating that it had “[b]rought more enemies to the Park than they ever begin to realize.” William Porter and May Mann Jennings pointed out that there was a conflict of interest in having Ernest Coe as executive chairman of both the ENPA and the ENPC. Mrs. Jennings noted that a new governor, Fred P. Cone, had just been inaugurated at Tallahassee, remarking “if we don’t get down to the job, you will see what Governor Cone will do.”

On February 9, 1937, Director Cammerer notified Thomas Pancoast, chair of the ENPC, of his boundary recommendations to Secretary Ickes. Pancoast in April asked Cammerer to delay the issuance of Secretary Ickes’s letter to Governor Cone on an acceptable minimum boundary until after the Florida legislature had adjourned. The legislature was considering the commission’s budget request. Pancoast feared that once the Monroe County delegation learned the details of the minimum boundary, it would turn against the ENPC. Ickes was in the area of the park in April, on a fishing and inspection trip in the company of Harry Hopkins, who headed the Works Progress Administration. Ickes used the trip to make his own assessment of Cammerer’s recommendations and ended up delaying his letter to the governor until August 13, 1937. In his letter, Ickes accepted all of Cammerer’s recommendations. The department of interior was willing to accept the Lopez River as the northwest water entrance to the park, giving up the Turner River country. Ickes also agreed to the exclusion of areas of potential agricultural worth west and south of Homestead. The department compromised on the keys, agreeing to accept a smaller portion of Key Largo than the 1930 boundary embraced. The secretary insisted that Florida Bay was an essential part of the park, largely because it was the habitat of many birds and marine animals. Ickes closed his letter by stating “the time has now come when the State may aggressively proceed with its program of acquiring the land.”

The Administration of Governor Fred P. Cone

May Mann Jennings’s political instincts about incoming Governor Cone turned out to be on target. Fred P. Cone, a Lake City farmer, lawyer, and banker, had been president of the state senate in the 1910s. Facing 13 opponents in the first round of the Democratic primary, he prevailed in the second round in May 1936 and assumed

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187 Minutes of Meeting of ENPC, Jan. 11, 1937, 15-16, 38, CP, EVER 19391b.
188 Until 1969, the Florida legislation met only every other year (odd numbered years) in the spring.
office on January 5, 1937. Cone ran on a platform of strict economy in state spending and no tax increases. Cone was a down-to-earth, folksy product of North Florida, which was his primary political base. It was obviously important for the ENPC and park proponents generally to establish good relations with Cone, especially since the state legislature was to convene shortly after he took office and would be making appropriations for the commission. Ernest Coe traveled to Tallahassee in February 1937 and met briefly with Cone. The two men’s contrasting reactions to the meeting are very revealing. Coe reported that the governor was “extremely affable” and very interested in the park project.\textsuperscript{190} Cone later wrote of this meeting:

\begin{quote}
Of course you know I talked with Mr. Ernest F. Coe, but he would run me crazy in thirty minutes, so I will be glad when the Association comes up here [Tallahassee] if they will leave him home, because he gives me the jim-jams.\textsuperscript{191}
\end{quote}

In the first half of 1937, it became increasingly apparent that Governor Cone had serious reservations about the Everglades National Park project and the operations of the ENPC. The commission met in April to hammer out a budget proposal for the period from July 1, 1937, to June 30, 1939, to present to the legislature. Knowing that the governor and legislature were keen to reduce expenditures, the commission made reductions where it could, but still ended up requesting $87,760, or $43,880 a year. In discussing the appropriate ENPC member to send to Tallahassee to lobby, Mrs. Jennings warned that “it would be poison” to send Ernest Coe. At the end of the April meeting, a motion was passed to have the commission meet monthly in the future. When the commission met again in early May, William Porter reported that the governor had vowed not to raise taxes and that the legislature seemed to lack leadership. The commission decided that it was imperative to have a member present in Tallahassee through the end of the legislative session to safeguard the ENPC’s interests. Mrs. Jennings reluctantly agreed to go to Tallahassee, promising to keep in close touch with the other members and to ask for a meeting of the full commission in the capital if it seemed desirable.\textsuperscript{192}

Once in Tallahassee, May Mann Jennings did everything she could to get the commission’s appropriation passed, contacting 37 of the 38 state senators and more


\textsuperscript{191} Gov. Cone to G. Orren Palmer, Dec. 9, 1937, Gov. Cone papers, box 30. “The jim-jams” is a colloquial expression meaning “the fidgets; nervousness; the ‘creeps’; low spirits” and has been in use since the early twentieth century. Eric Partridge, \textit{A Dictionary of Slang and Unconventional English}, 8\textsuperscript{th} ed. (New York: Macmillan, 1984), 620.

\textsuperscript{192} “Governor's Message to Florida Legislature,” \textit{Florida Times-Union}, Apr. 7, 1937; Meeting of the ENPC, Apr. 3, 1937, CP, EVER 19427a; Minutes of Meeting of the ENPC, May 3, 1937, CP, EVER 19428.
than half of the representatives. She also met with Governor Cone and reported him to be “very sore” about the $4,000 salary of the executive chairman and skeptical of the need for an executive secretary and four typists. The governor wanted to assert his control over the ENPC and told Mrs. Jennings that he would veto any appropriation for it unless all its members resigned, giving him free reign to reconstitute the commission as he saw fit. Jennings wrote the other commission members that Cone “means exactly what he says.” On June 8, the governor requested the resignation of each commission member, writing “I want to have some say so about where it [the appropriation] is to be spent and how.” The members complied, and the legislature passed the two-year appropriation of $87,760. Governor Cone signed the bill into law on June 12, but had no intention of allowing anything close to that amount actually to be disbursed.193

To get a better handle on the ENPC and the entire Everglades situation, Governor Cone asked a cousin, G. Orren Palmer, a retired lawyer living in Miami Beach, to investigate and report to him. Palmer reported that contrary to rumors, he believed that the ENPC had been quite frugal in its expenditures. He thought that Ernest Coe by far had the most knowledge of the park project and should be retained as executive chairman. Palmer believed it a bad idea to retain anyone on the commission who was a land owner or represented one and that Benjamin Axleroad should be let go. In sum, Palmer recommended that the ENPC be maintained, but with a smaller membership and a strictly controlled budget. Cone responded that he felt that the park boundary was too comprehensive and that he refused to tax the people of Florida to buy land for the park. He thought that either the federal government or northern philanthropists should bear the entire cost. Throughout his four years in office, Cone gave vague public assurances that he favored the park’s establishment, but in practice he did nothing to bring it about. Augustus Houghton was on point when he wrote to Director Cammerer, “you can expect no help from Governor Cone.” Cone’s attitude largely stemmed from his belief that a national park in the Everglades would primarily benefit Miami and environs, where he had few political supporters. Secondarily, he was committed to reigning in state expenditures in hard times (figure 4-3, The Miami Daily News blasts Gov. Cone’s attitude).194

Governor Cone accepted the resignations of the ENPC members in July but made no new appointments for several months. Mrs. Jennings asked the governor to

193 Mrs. W. S. Jennings to Thomas J. Pancoast, June 6, 1937, CP, EVER 19938; Mrs. W. S. Jennings to Gov. Cone, June 6, 1937, Gov. Cone papers, box 30; Mrs. W. S. Jennings to ENPC members, June 6, 1937, CP, EVER 19939; Gov. Fred P. Cone to Ernest F. Coe, June 8, 1937, CP, EVER 14604; “$300,000 Payments under Legislative Acts Are Withheld,” Miami Herald, Nov. 4, 1937; Senate Bill 707, Florida Acts of 1937.

Figure 4-3. The Miami Daily News blasts lack of progress on the park, 1939
appoint her executive chairman, but he declined, naming G. Orren Palmer to the post on November 16, 1937.\footnote{Thomas Pancoast believed that Mrs. Jennings had been angling for the executive chairmanship all along and indeed had a hand in persuading Governor Cone to demand the commissioners’ resignations. No other evidence has been found to support this charge.} The position’s salary was kept at $4,000 a year. It seems clear that the governor’s objection was to the person who was receiving this salary, not its amount. Cone reappointed G. Graham Copeland, in spite of Palmer’s reservations about representatives of land owners, and added four other members: C. J. McElheny, Tampa, I. J. Reuter, Miami Beach, John P. Stokes, Miami, and H. R. Howell, Miami. As Ernest Coe and Benjamin Axleroad interpreted Florida law, they believed that they were authorized to hold on to their ENPC positions and draw their salaries until their successors entered on duty. Coe continued to approve salary vouchers for Axleroad and other employees, but Governor Cone refused to sign off on them. Axleroad pursued a legal case for his back pay. The Florida Supreme Court ruled that he was entitled to his pay, but concluded it had no power to compel the governor to authorize payment.\footnote{Ernest F. Coe to Gov. Cone, June 16, 1939, Gov. Cone papers, box 31; Gov. Cone to G. O. Palmer, Nov. 30, 1937, Gov. Cone Papers, box 30; J. H. Meyer to Mr. English, Apr. 5, 1939, CP, EVER 148026; State Legislature Gets Axleroad Case,” \textit{Miami Herald}, Apr. 8, 1939.}

On another front, Congressman Wilcox succeeded in getting the five-year ban on federal expenditures for park administration, protection, and development removed, with an act passed August 21, 1937 (H.R. 2014). Park supporters hoped that this move would allow CCC camps to be established within the park’s proposed boundary. The work at Royal Palm State Park was already completed (see chapter 2), however, and there were no other state- or federal-owned tracts where the CCC could legally operate. Everglades National Park was authorized but not yet established, so the removal of the spending ban had little practical effect.\footnote{Ernest F. Coe to Gov. Cone, June 16, 1939, Gov. Cone papers, box 31; Gov. Cone to G. O. Palmer, Nov. 30, 1937, Gov. Cone Papers, box 30; J. H. Meyer to Mr. English, Apr. 5, 1939, CP, EVER 148026; State Legislature Gets Axleroad Case,” \textit{Miami Herald}, Apr. 8, 1939.}

The Board of Trustees of the IIF, in consultation with the U.S. Office of Indian Affairs,\footnote{The Office of Indian Affairs within the Department of the Interior became the Bureau of Indian Affairs in 1947.} decided in 1937 to establish a 104,000-acre reservation for the Seminoles in Broward County. This replaced the 99,200-acre Monroe County reservation that the state had decided to donate to the federal government for the national park. The southern boundary of the new reservation abutted the north park boundary under the maximum park boundary of 1930 (see figure 4-1). An unnamed state official described this as “trading virtually nothing for something of the same value.” He characterized the land in Broward County as mostly marsh with a few high spots. The Office of Indian Affairs believed that the Seminoles had never made “any substantial use” of the Monroe County reservation. A 1930 map of Seminole camps shows only one camp within the reservation, that of Ingram Billy. Undoubtedly the Indians fished, frogged,
hunted, and gathered in the reservation, using temporary camps. Newspaper coverage and a statement from the Superintendent of the Seminole Agency indicate that the Seminoles opposed the move to Broward County. They seemed, however, more concerned about having to potentially give up their camps along the Tamiami Trail than losing the Monroe County acreage (see chapter 18). 199

The Park Project in the Doldrums

The park project made little progress during Governor Cone’s administration. Cone permitted only about $19,000 of the $87,660 appropriation from 1937 to be expended; much of this went for his cousin’s salary as executive director of the ENPC. NPS Director Cammerer was again in South Florida in December 1937 for a joint meeting of the ENPA and the ENPC. Twice in the summer of 1939, Secretary of the Interior Ickes met with Palmer, who had been reappointed executive director in April. As time passed, Ickes was increasingly impatient and vocal in urging the state to move forward with land acquisition. Florida’s newspaper editors began to attack Governor Cone for his lack of interest. Even Palmer, Cone’s hand-picked ENPC executive director and near relation, seemed to have difficulty in getting the governor’s attention, referring to the “none too definite” nature of their conversations on the park project. The Orlando Sentinel noted with some disgust that Palmer would be lucky to get the commission’s postage expenses covered by the state. 200

Reporting on a meeting that he had with Secretary Ickes in the summer of 1939, Palmer noted that the blunt-spoken secretary’s “opening remark was to the effect that it was inconceivable why the State of Florida had done so little in furthering the Everglades National Park project, and that unless the State showed more interest, the Federal Government would soon abandon the project.” 201

Director Cammerer confessed that he had worries about the Everglades, but was willing to wait, writing in December 1938:

Governors come and go and where one Governor has the vision, another lacks it. The next Governor may be more favorable. . . . I feel that the project just can’t be permitted to fail, even should it have to be cut down in area as a last resort. I am


201 G. O. Palmer to Spessard L. Holland, Aug. 27, 1940, SLH papers, box 95.
not breathing this last as a possibility, but we may come to it sooner or later, rather than have the project fail.\textsuperscript{202}

A typical editorial reaction came from the \textit{Tampa Daily Times} in the last year of Governor Cone’s term:

Why Not Get Everglades Park Now, Governor?

This Everglades Park editorial is addressed to Governor Cone and members of the State Cabinet and its point is that the people of Florida have shown as plainly as they can . . . that they want Everglades National Park opened up as soon as possible; so why doesn’t the State administration get busy?

The vital preliminary steps should not have to wait until after another governor takes office. Floridans \textit{[sic]} are still expecting Governor Cone to order a real and aggressive effort to secure this park project as soon as possible. All Florida would acclaim such action. How about it, Governor?\textsuperscript{203}

Jacksonville’s \textit{Florida Times-Union}, the \textit{Miami Herald}, the \textit{Key West Citizen}, the \textit{Fort Meyers News Press}, the \textit{Melbourne Times}, and the \textit{Lake Wales Highlander} published editorials expressing similar sentiments.

The 1938 NPS Wildlife Reconnaissance Report

A small step forward in the late 1930s was the preparation by the NPS of a fairly detailed report on the plant and animal life of the Everglades. A wildlife technician in NPS Region One, Daniel B. “Dan” Beard,\textsuperscript{204} did field work in the Everglades off and on from November 1937 to September 1938. The result was a 104-page special report that also included 34 photographs and a base map, submitted November 1, 1938 (figure 4-4, Daniel Beard’s 1938 \textit{Wildlife Reconnaissance} cover). Beard noted that he “was able to cover most of the area by foot or boat and to fly over the entire project area a number of times.” He cautioned that his report was “by no means a biological survey,” but rather a general description of the project area with some discussion of

\textsuperscript{203} \textit{Tampa Daily Times}, Feb. 13, 1940.
\textsuperscript{204} Daniel B. Beard was the son of Daniel Carter Beard, who helped found the Boys Scouts of America and was a noted authority on camping and woodcraft. Daniel B. Beard majored in political science at Syracuse University while taking zoology and biology courses. In 1934, he began an NPS career as a CCC camp wildlife technician, later serving in the NPS Region 1 Office and the Washington Office. Daniel B. Beard later became Everglades National Park’s first superintendent, serving from August 1947 to May 1958 (see chapter 5). Beard went from the Everglades superintendency to the become superintendent of Olympic National Park and retired as director of the NPS Southwest Region, headquartered in Santa Fe. Biographical Information for Daniel Beard; undated fact sheet, SFCMC; “Glades Park Chief Loves Outdoor Life,” \textit{Miami Herald}, July 27, 1947; personal communication, Albert Beard to Nancy Russell, Mar. 19, 2011.
Figure 4-4. Daniel Beard’s 1938 Wildlife Reconnaissance
the issues and problems future park managers could expect to confront.205 Dan Beard
would later be named Everglades National Park’s first superintendent (see chapter 5).

Beard’s study provided an overview of the climate, physiography, flora, and fauna of
the Everglades. Because he was writing for an internal NPS audience, Beard was
often rather blunt in his assessments. He acknowledged that the reasons for national
park status were “90 percent biological ones,” and that the area had been seriously
compromised by human activities. Beard was convinced that the NPS would need to
actively manage the area in order to counteract the effects of previous exploitation of
natural resources and extensive drainage works. He advised his readers to look past
existing conditions and consider what the area would be like “50 to 100 years from
now . . . . after years of protection and careful administration.” In addition to drainage,
Beard addressed fires, commercial fishing, hunting, trapping, timbering, agriculture,
and the collection of rare plants and animals, notably the colorful tree snails of the
genus Liguus. Other rare species that he singled out for attention included the Florida
panther (at the time often called the Florida cougar), the manatee, the Everglades kite,
the alligator, the American crocodile, and wading birds: the great white heron, the
reddish egret, the roseate spoonbill, and the eastern glossy ibis. Beard frankly discussed
the issues surrounding an acceptable park boundary, concluding that because of land
values and local opposition, “it is doubtful whether the Service can look forward to
acquisition of Key Largo.”206

The 31-year-old wildlife technician was not shy about offering his “preliminary
thoughts on the master plan” for the park. Beard clearly understood that the appro-
 priate development for visitor access in a wilderness park was the key issue in park
planning for the Everglades. At that time, Beard believed that no development of the
Cape Sable beaches was compatible with protection of the natural resources. Like
others in the NPS, he believed that the forbidding nature of the sawgrass marshes
would keep visitors away from them, ensuring their protection. He did state that the
presence of visitors on motor roads in selected areas of the park was compatible with
the protection of nearby wilderness areas. Beard also understood that there would be
considerable pressure from local interests for extensive development for recreational
activity. He observed that the NPS might well be forced to construct a road from
Everglades City some distance into the park, but he was dead set against the shoreline
road touted by Ernest Coe and others (see figure 3-4), arguing that the lakes, bays, and
mangrove forests along the coast “must remain primitive.” Influenced by prevailing
NPS attitudes about giving motorist interesting views from roads as well as access to

205 Daniel B. Beard, Asst. Wildlife Technician, to Dr. Carl P. Russell, RDR1, Nov. 1, 1938, transmit-
ting Daniel B. Beard, Special Report: Everglades National Park Project, Florida, Wildlife Recon-
naissance (Richmond: NPS Region One, 1938) [hereinafter cited as Beard, Wildlife Reconna-
sance].
206 Beard, Wildlife Reconnaissance, quotes at 1 and 95.
notable features, Beard believed the existing Homestead to Flamingo Road would have to be scrapped in favor of a new road. As detailed below in chapter 7, Beard would adhere to this view as park superintendent in the 1950s. Beard concluded his report with the recommendation that a biological research station be established in the park, although he noted that under current NPS policies, much of the research would need to be carried out by outside scientists under permit rather than NPS staff.207

The Oil and Gas Problem

The conviction of some that the Everglades could produce riches from oil and natural gas was a major deterrent to early park establishment. Entrepreneurs like William G. Blanchard had been touting oil in the Everglades since the early 1920s. D. Graham Copeland in 1937 helped the Gulf Oil Company secure some oil leases in Collier County, and two years later, the Chevelier Land Company circulated flyers urging the public to buy or lease lands with oil potential from it while prices were still reasonable. Wells drilled in 1939 and 1940 found no oil, but then on September 26, 1943 Humble Oil Company’s Sunniland Well in Collier County, 25 miles north of the Tamiami Trail, began producing small amounts of oil. This development made the state reluctant to cede oil rights on state-owned land and gave private land owners exalted ideas about the value of their land. In 1946, Humble drilled two exploratory wells, 1.5 and 7 miles south of the Tamiami Trail at the present-day site of the Shark Valley Loop Road. This oil exploration activity deep in the Shark River Slough was extremely troubling to park boosters. Ernest Coe tried to make the best of the situation by downplaying any potential drawbacks from oil production. In 1944 he wrote “[T]here is every reason to anticipate that the scars of oil wells, when production equipment is removed, would very soon disappear.”208

Governors Holland and Caldwell
Get the Park Project Moving Again

By 1940, the U.S. was at last pulling out of the Great Depression, although Florida lagged the nation somewhat in its recovery. State tax receipts were on the increase, and all of the major candidates for governor that year pledged to work for the early establishment of Everglades National Park. Spessard L. Holland, a lawyer and state senator from Polk County with a considerable statewide reputation and strong support

Chapter 4: The Long and Winding Road to Park Establishment

from business leaders, won the May 1940 gubernatorial run-off election and served from January 1941 to January 1945. The NPS also had new leadership, with Newton Drury of the Save-the-Redwoods League replacing Arno B. Cammerer as director in January 1940. Cammerer had suffered a heart attack and sought a less demanding job. He served as regional director in NPS Region One from August 1940 until his death in April 1941. Support for the national park remained strong in Florida, with the state chamber of commerce, the State Democratic Party Committee, the Florida State Planning Board, and others passing resolutions urging action. The chair of the U.S. House Public Lands Committee, J. W. Robinson of Utah, toured the Everglades in December 1940. He told a reporter, “There’s only one Everglades and it should be dedicated as a national park,” but added that state action was needed. From 1941 through 1947, under Holland and his successor Governor Millard Caldwell, protracted negotiations took place between the NPS and the state over a minimum park boundary, the retention of oil and mineral rights, and how the private land was to be paid for.

In March 1941, Director Drury made his first visit to the Everglades to familiarize himself with the area and the issues involved in park establishment. Drury was accompanied by Region One Director Cammerer, NPS Chief Forester John Coffman, John H. Baker, executive secretary of the National Audubon Society (NAS), and C. Ray Vinten. Vinten held two NPS positions: coordinating superintendent for southeastern monuments and superintendent of Castillo de San Marcos National Monument. Frederick Law Olmsted Jr. and Harlan Kelsey participated in some of the trip. Baker and Vinten would play important roles in the negotiations leading to the park’s establishment in June 1947. A successful investment advisor and passionate amateur ornithologist, Baker was executive director of the NAS from 1934 to 1944, and its president from 1944 until his retirement in 1959. A landscape architect by training, Vinten was Castillo superintendent until his retirement in 1962. Following their tour of the Everglades, the NPS party went to Tallahassee for a March 10, 1941, meeting with Governor Holland and members of the Board of Trustees of the IIF.

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209 The NPS adopted a regional structure in 1937. Four regional offices were established. Region One had its headquarters in Richmond, Virginia. From 1937 to 1955, it included all the states east of the Mississippi River except Michigan, Indiana, Illinois, and Wisconsin.


211 The National Association of Audubon Societies changed its name to the National Audubon Society in 1940.

The five-hour meeting in Tallahassee in early March 1941 marked the revival of the Everglades National Park project after four years of inertia. In addition to Governor Holland and Director Drury and his NPS colleagues, John Baker, G. Orren Palmer of the ENPC, and Ernest Coe and Thomas Pancoast of the ENPA participated. Governor Holland believed he needed to retain oil and gas rights to any state land that would become part of the park, while Drury explained that the NPS could accept for park purposes only lands conveyed in fee simple, with no retained rights for the conveyor. John Baker then proposed an idea that had been previously under discussion within the NPS: that the state convey its lands for protection by the U.S. Fish & Wildlife Service (FWS), while retaining mineral rights. The FWS operated under less stringent legal requirements than the NPS, and could protect the important bird rookeries and feeding grounds until it was determined whether commercial quantities of oil and gas were present in the Everglades. After discussions between Director Drury and Dr. Ira Gabrielson, director of the FWS, Secretary Ickes on April 4, 1941, wrote Governor Holland indicating his formal approval of temporary administration by the FWS. Interior and the NPS regarded this as a short-term expedient and looked forward to getting the state lands in fee simple at a later date for a national park, once what Drury called the “oil flurry” had died out. Director Drury at this time also formally designated Ray Vinten as his representative in talks with state officials.

At the same time that serious talks between NPS and the state got underway, Ernest Coe and May Mann Jennings were angling to get an appointment as managing director of the ENPC from Governor Holland. The 1941 session of the state legislature reauthorized the ENPC and appropriated $25,000 for its operations from July 1, 1941, to June 30, 1943 (House bills 1154 and 1165). The new legislation made no mention of the existing position of executive chairman, held by G. Orren Palmer, but authorized a new position of managing director. Because the work of preparing abstracts of title was 90 percent complete, there was not a lot for the commission to do, at least until funds became available to purchase private holdings. For reasons that are not entirely clear, Governor Holland ignored the change of titles in the 1941 act and allowed Palmer to remain as head of the ENPC throughout his term. Because there seemed to be no prospect of getting the legislature to appropriate funds for land acquisition, Holland may have believed that it made little difference who headed the ENPC. To facilitate the new plan for FWS administration, the Florida legislature also passed an act explicitly authorizing the Trustees of the IIF to convey land for wildlife conservation, while retaining oil, gas, and mineral rights (House bill 1164, Chapter 20653).

213 Dir. Drury to RDR1 Cammerer, Mar. 17, 1941, C. R. Vinten to Dir. Drury, Mar. 19, 1941, NARA II, RG 79, NPS CCF, box 905; Dir. Drury to SOI Ickes, Apr. 2, 1941, SOI Ickes to Gov. Holland, Apr. 4, 1941, NARA II, RG 48, DOI, Office of the SOI, box 3853
In addition to his concern about preserving oil and gas rights for the state of Florida, Governor Holland believed that the original park embracing more than 2,000 square miles was not acceptable to the people of Florida. To address this, Director Drury in the spring of 1942 dispatched an NPS team to the Everglades to make a new study of the boundary question. Headed by Conrad Wirth, Supervisor of Recreation and Land Planning, the team included Regional Director Thomas Allen, Vinten, and Regional Biologist Dan Beard. The team concluded that the park could be reduced from 1,454,092 acres to 1,018,060 acres without “greatly impairing” park values. The team recommended the elimination of Key Largo because of the high land values and the difficulty of administration. It emphasized the importance of including Florida Bay, but called for the boundary to be moved from the shoreline of the keys to the line of the Intracoastal Waterway, a distance of between two and five miles. The team wanted to exclude about 75,000 acres on the north side of the Tamiami Trail, making the north boundary line run about three miles north of the trail. Another recommendation was to move the east boundary westward so as to exclude some acreage around Royal Palm Hammock and Long Pine Key, because the areas were actively or potentially useful for agriculture. This included the acreage that later would become known as the Hole-in-the-Donut. The team also wanted to protect the Turner River by including in the park a strip running one-half mile on each side of the river. Presumably, this would have excluded some acreage lying between Turner River and Lopez River.

Director Drury returned to Tallahassee in June 1942 to present the reduced boundary to Governor Holland and F. C. Elliot, secretary and engineer of the IIF. Vinten, Wirth, and Harold Colee, executive vice president of the Florida State Chamber of Commerce, also participated in the meetings. Colee would emerge as an important bridge to Florida’s business community, the Model Land Company especially, in the ongoing negotiations. The new boundary was presented as a basis for discussion, not as an approved boundary. At this meeting, Holland made the suggestion that the southern portion of the park project might be treated differently than the northern. He proposed conveying the southern state holdings in fee simple to the U.S., with only the caveat that, should the U.S. ever allow oil exploration, the state would receive any royalties. For the northern area, the governor wanted both the state and private sellers to retain the oil rights. The governor gave his opinion that it was highly unlikely that the legislature was prepared to appropriate funds for the acquisition of private holdings.

215 Thomas J. Allen was regional director of NPS Region One from 1944 to 1951.
216 Dir. Drury to SOI Ickes, Mar. 28, 1941, NARA II, RG 48, DOI, Office of the SOI, box 3853; Conrad Wirth, Supervisor of Recreation and Planning, to Dir. Drury, Apr. 17, 1942, CP, EVER 22843.
217 Gov. Holland to files, June 4, 1942, Gov. Holland papers, box 34.
The negotiations between the state and the federal government proceeded without the participation of Ernest Coe. When Coe read of the proposed boundary reduction in the newspapers, he fired off a letter to Secretary Ickes urging him to hold to the original maximum boundary. Ickes replied:

I believe the Department should assume jurisdiction over any reasonably large area or areas that can be made available for park purposes. In time the project can be enlarged to whatever acreage is ultimately needed to serve its purposes.\footnote{SOI Ickes to Ernest F. Coe, July 21, 1942, Gov. Holland papers, box 34.}

For the rest of his days, Coe would focus on trying to preserve the boundary he had first suggested in 1928. His unwillingness to bend on this point meant that he played no constructive role in the search for a compromise that would get the park established. To many observers, Coe was more of a hindrance than a help in the late 1930s and 1940s.

The NPS and Governor Holland negotiated through the remainder of 1942 and during all of 1943 about the details of a compromise solution that would immediately establish NPS authority in the critical southwestern area north and east of Cape Sable. The NPS was willing to administer an initial park area of as little as 200,000 acres, if the state would convey it without any reserved rights. Areas to the north would be placed under the protection of the FWS, with the state and private owners retaining the oil and mineral rights. If oil was not found, these areas would then be gradually placed under NPS protection. Although the NPS would begin providing protection immediately, the park would not be established until sufficient additional acreage had been conveyed. The governor was more inclined to deed to the NPS scattered areas containing rookeries and feeding grounds. Drury and Vinten met with Governor Holland and Congressman J. Hardin Peterson in Miami on December 31, 1943, and January 1, 1944, to further discuss these ideas, as well as the new state and federal legislation that would be needed to implement them. Holland was eager to announce a solution that would bring NPS administration to the area before he left office in January 1945. Director Drury presented a formal proposal to place 200,000 acres under immediate NPS protection to Governor Holland in a letter dated February 15, 1944.\footnote{Dir. Drury to SOI Ickes, Sep. 27, 1943, cited in Chronology, Everglades National Park – Florida, ENP, EVER 22965; C. R. Vinten to Dir. Drury, Jan. 5, 1944. NARA II, RG 79, NPS CCF, box 900; Dir. Drury to SOI Ickes, Feb. 15, 1944, EVER 22965, ser. I, sub. A, box 2.}

Governor Holland declined this proposal, much to the annoyance of Secretary Ickes. Ickes wrote Holland:

We have made several readjustments to the original boundaries to meet conditions imposed by the Florida authorities, have at your request eliminated possible
agricultural lands, and have agreed to your stipulation that if oil were ever developed in the National Park the royalties will go to the State of Florida.

The secretary concluded that the only remaining option was to seek to amend the federal authorizing act to permit Interior to accept title to lands with retained oil rights for protection by the FWS, with no immediate NPS role. A national park would be established only after the state and private lands had “been cleared of oil reservations . . . provided the damage to the natural features has not been too great.” Ickes concluded by noting “this project has languished too long . . . . Time is running out in the Everglades.”

New state and federal legislation was required to allow the FWS to assume the duty of protecting wildlife in the Everglades. On December 6, 1944, President Roosevelt signed an act that authorized the secretary of the interior to accept title to land subject to oil, gas, and mineral reservations (see appendix A for text of the act). The act further provided that a national park would not be established and no development would occur until a “major portion” of the land within the 1930 “recommended area” was conveyed to the U.S. If a park was not established within ten years of the act’s passage, any lands accepted by the U.S. would revert to the state or to the private grantor. The ten-year limit was inserted at the suggestion of Governor Holland. Regional Director Thomas Allen remarked that this represented a reversal of the usual procedure in which a federal law provided that a park would be established if a state conveyed land by a certain date. Florida instead insisted “that we [the U.S.] can have the necessary lands providing they do not decide to do something else with them by a certain date,” i.e., lease them for commercial oil production.

More meetings were held in Tallahassee in December 1944, in the final weeks of Governor Holland’s term. The principal participants in a December 13 meeting were the governor, FWS Director Gabrielson, Ray Vinten, John Baker, Ernest Coe, Florida Commissioner of Agriculture Nathan Mayo, Florida Secretary of State R. A. Gray, and Fred Elliot of the IIF. Governor-elect Millard Caldwell sat in on some of the meeting. A major outcome of the meetings was an agreement on the boundary of the lands to be conveyed by the state to the U.S. for protection by the FWS. The NPS and FWS were pleasantly surprised that the state was willing to convey about 500,000 acres on the mainland and more than 500,000 acres of submerged lands. After reviewing the recently passed federal law, the participants decided that new Florida legislation would be needed to authorize conveyance of lands to the FWS rather than the NPS

221 P. L. 78-463, Dec. 6 1944; RDR1 Allen to C. Ray Vinten, Aug. 19, 1944.
222 Also present were D. J. Chaney, an FWS attorney, John H. Davis Jr. of the Florida Geologist’s office, attorneys Irvin and Heinz of the Florida Attorney General’s office, and F. E. Bayless from the state department of agriculture.
as previously provided. The state made it clear that if it granted oil leases on its land, they would be limited to ten years or less. If oil in commercial quantities was found, the leases would continue; if not, they would expire. The general hope was that no producing wells would be developed, the oil leases would expire, and a national park would be established within the ten-year limit. John Baker committed the Audubon Society to continuing its warden work in the Everglades until the FWS was fully able to assume protection duties. Governor-elect Caldwell commented that he was “not too optimistic” about getting an appropriation for private land acquisition from the 1945 session of the state legislature.223

It remained for the Trustees of the IIF to ratify the actions agreed upon on December 13. The trustees met on December 19 and again on December 28, 1945. At the second meeting the trustees approved a memorandum of agreement and a deed of conveyance to the federal government. The deed envisioned a park of 1,183,600 acres. One of the five trustees, Attorney General Tom Watson,224 objected to the arrangement that had been worked out and refused to sign either document. This was not fatal, as only a majority of the five trustees was needed to ratify an action. The memorandum of understanding committed the IIF and the Department of the Interior to cooperating to protect the wildlife resources of the area to be conveyed. The trustees also agreed to do what they could to prevent pollution and damage from any exploratory oil drilling. The deed conveyed to the federal government the state holdings indicated on Map NP-EVE-6001, subject to the retention of the oil, gas, and mineral rights and the ten-year reversion provision. On January 2, 1945, the secretary of the interior announced his conditional acceptance of the deed proffered by the state, and on January 12, he executed the memorandum of agreement.225 Formal acceptance of the deed did not occur until March 1947 (see below). As Director Drury put it to Dr. David Fairchild, the agreement hammered out with the state “was not the ideal” but represented “the ‘second best’ means to the accomplishment of ultimate national park objectives.”226 The DOI and NPS believed that there was no alternative to allowing Florida up to ten years to determine whether commercial quantities of oil and gas were present in the Everglades.

The Everglades National Wildlife Refuge was established in March 1945, under the protection of the U.S. Fish and Wildlife Service. Daniel B. “Dan” Beard was


224 Watson would go on to make protection of oil and gas rights in the Everglades the keynote of an unsuccessful run for the governorship in the 1948 primary (see chapter 6).


named refuge manager. The operations of the refuge before the establishment of Everglades National Park are covered below in chapter 5.

Millard Caldwell was inaugurated governor in January 1945 amid renewed hopes that Everglades National Park could be established within a relatively few years. A lawyer and businessman who began his career in Santa Rosa County, Caldwell had the support of the same business leaders who had been behind Holland in 1940. The new governor was fully supportive of the park project, but wanted the NPS to commit to establishing the park based on an acreage that could be obtained relatively quickly. He also was frustrated that the ENPA in its 16 years of existence had failed to raise a single dollar for the acquisition of private lands. Caldwell persuaded outgoing governor Holland to be his informal representative on Everglades land issues. In early March 1945, Caldwell and Holland spent three days with Ray Vinten and John Baker touring the Everglades. At about the same time, Caldwell appointed Gilbert Leach as managing director of the ENPC. Leach, publisher of the Leesburg Commercial, had been public relations manager for Caldwell’s campaign. Before he adopted a strategy on land acquisition for the park, Caldwell asked Leach to investigate the previous operations of the ENPC and its relations with the ENPA.227

Gilbert Leach was a new player in the Everglades story; another was John Pennekamp, associate editor of the Miami Herald. As Pennekamp later told the story, sometime late in his gubernatorial administration, Spessard Holland was in a conversation with John Knight, publisher of the Herald. When the talk turned to the Everglades National Park project, Knight asked what that was. Indignant, Holland shot back, “Don’t you read your own newspaper? You had a story this morning about it.” Knight then spoke with Pennekamp, who filled him in on what the park could mean for Florida in terms of national attention and tourist revenues. Knight assigned his associate editor the task of helping make the park a reality. From this point, Pennekamp and the Herald were among the most effective allies in the drive to get the park established. 228

The renewed drive for an Everglades National Park in the 1940s reflected the growing belief that tourism would be an important driver of the postwar Florida economy. During the war, Florida businessmen and politicians actively planned to reestablish and expand the state’s revenues from tourism just as soon as the war ended and travel restrictions eased. In 1943, the Florida Chamber of Commerce prepared a detailed plan for postwar tourism, and in 1945, the Florida legislature appropriated the unprecedented sum of $1 million for tourism promotion. That same year, a Miami Daily News editorial noted that “the public is getting an idea that such an Everglades park will be a gold mine.” Business interests were keenly aware that many of the 2

228 E. V. W. Jones to Merrill Winslett, June 14, 1966, SLH papers, box 587.
million men and women who had done wartime service in the state would welcome a chance to return for vacations. The more favorable attitudes toward an Everglades park among Florida’s politicians is partly explained by these economic motives.229

ENPC Managing Director Gilbert Leach established contact with Pennekamp as well as the editor of the Miami Daily News, the Miami Chamber of Commerce, the Miami Rotary Club, and other area groups. He also talked to business leaders in Key West, who remained nervous about having Key Largo acreage made part of the park against their wishes. Leach soon reported to Governor Caldwell that the ENPC had done little under G. O. Palmer’s leadership, and that hardly anyone in Miami business and civic circles even knew Palmer. He found that there was much confusion over the respective roles of the ENPC and the ENPA, and concluded that when the two organizations had been headed by Ernest Coe from 1935 to 1937, “the result was disastrous, both financially and in the lack of practical results.” Leach’s initial recommendation was that the ENPC be made a small body and the membership of the ENPA expanded.230

Governor Caldwell, Leach, Pennekamp, and Vinten made an effort to convert the ENPA into an effective fund-raising organization. One idea was to expand the association’s membership. Their thinking was that if the association could attract prominent members from across Florida, it would be in a much better position to obtain contributions. Adding some prominent Floridians to the membership also might reduce the dominance of Ernest Coe over the organization. In May 1945, Caldwell put some pressure on the association with a few pointed public remarks. The governor told the press that he was not certain the ENPC should continue in existence, stating that “unless the local people, particularly the Everglades National Park Association, show some real interest in raising money I’m going to withdraw the State support.” For a time it appeared that the ENPA would take on the fund-raising role, but Coe still wanted his maximum park boundary.231

Fund-raising and an acceptable minimum boundary were the dominant issues at a September 5, 1945, Miami meeting called by John Knight and John Pennekamp of the Herald, most likely with the approval of Governor Caldwell. Former governor Holland, Ray Vinten, ENPC Managing Director Leach, Coe and Mark Wilcox of the ENPA also were in attendance. Caldwell and Holland pushed for the quick establishment of the park with a reduced boundary, with the understanding that additions

could be made later. Coe was alone in arguing for the original boundary. Holland said he was willing to head up a fund-raising committee if the disputes about the boundary could be ended and if the ENPA agreed to seek an expanded, more “representative” membership. Finding himself in the minority on the boundary question, Coe announced his resignation as ENPA executive director, but rescinded it within 10 days. In mid-October, Coe let it be known that the association would not expand its membership or engage in fund-raising, unless the state and the NPS committed to the full original boundary. As Ray Vinten put it, “we are now right back where we were last December with the State of Florida assuming full responsibility for park establishment.”

When the National Association of Audubon Societies held its annual meeting in New York in October 1945, John Pennekamp, Ray Vinten, and John Baker took advantage of the occasion to hold further discussions about the Everglades situation. Dr. Gabrielson of the FWS, C. Kay Davis, head of the U.S. Soil Conservation Service Florida office, and Ernest Coe participated in the discussions. Now, Pennekamp was unofficially representing Governor Caldwell in negotiations and also using his forum in the Herald to advance the state’s point of view. Pennekamp pressed the NPS to go beyond a general statement of principles concerning a minimum acceptable park area and offer the state “a minimum area defined by a definite [boundary] line.” Ernest Coe continued to hold out for the maximum boundary. Vinten agreed to take the state’s request to the director and the secretary of the interior. Everyone in attendance agreed that more definitive information on land values was needed before donations for purchasing land could be sought. Kay Davis proposed that the Soil Conservation Service prepare a survey of the Everglades soils, which would indicate which areas had potential for agriculture, and therefore would have a higher valuation.

Following additional conversations in Washington and the exchange of correspondence, Secretary Ickes wrote Governor Caldwell in early January 1946. Ickes gave Caldwell the firm commitment that he wanted, attaching a map with a boundary outlined in red and stating, “This is the minimum area acceptable for a national park.” Predictably, Ernest Coe was unhappy and wrote Director Drury that if the secretary “approves a minimum area map that does not include the major features for the park included in the authorization, the writer will recommend that the Association wind up its affairs, he himself resigning.” Wanting to avoid a public battle among the Florida supporters of the park, Secretary Ickes did his best to placate Coe, assuring him that the minimum boundary needed for establishment was not the final boundary and that
additions to the park could be made later. Coe withdrew from the affairs of the ENPA for a few weeks, but was again signing himself as executive director by late March 1946.

Shortly after writing to Governor Caldwell, Secretary Ickes resigned, effective February 15, 1946. His leaving was not connected with any Everglades issues, but was in protest over President Truman’s naming of an oil industry executive as undersecretary of the Navy. The President named Julius Krug, formerly with the Tennessee Valley Authority and the War Production Board, to replace him. Following confirmation by the Senate, Krug assumed office on March 18, 1946.

To fulfill the commitment made in October 1945, the Soil Conservation Service (SCS) conducted a reconnaissance conservation survey of the park area from January 23 through February 5, 1946. The SCS concluded that the vast majority of the soils in the proposed park area were unsuitable for agriculture. This was attributed to a variety of factors: soils were either too low in elevation, lacked a reliable source of fresh water, had been contaminated by salt water, or could not be successfully drained. Only an area of about 9,600 acres west of Royal Palm Hammock, consisting of Rockdale soils, was found to have potential for tomatoes and citrus. Even here, the SCS concluded that the land would have to be cleared and scarified, and might not get enough water in dry years.

Now that he had a firm commitment from Interior on an acceptable minimum boundary and an understanding that most of the proposed park area was unsuitable for agriculture and consequently of low market value, Governor Caldwell was ready to move ahead on land acquisition. Caldwell arranged for John Pennekamp to host a meeting of park supporters in Miami on February 11, 1946. John Baker, Gilbert Leach, Ray Vinten, Harold Colee, and representatives of the SCS, the Florida Federation of Women’s Clubs, and the Florida Federation of Parent-Teachers Associations were among the 40 people who attended. Ernest Coe did not attend and the ENPA was represented by its president, J. Mark Wilcox. The purpose of the meeting was to show widespread support in Florida for the national park and to plot strategy for land acquisition. The Florida State Chamber of Commerce, the PTA group, and the Florida Federation of Women’s Clubs all pledged support for a fund-raising campaign. The attendees also made a formal request to Governor Caldwell to immediately reactivate


the ENPC, on a “statewide” basis. It is clear that everyone but Ernest Coe had accepted that only a smaller park could be established right away, and the Miami meeting no doubt was partly motivated by a desire to show how isolated Coe had become and how widespread was the support for the rapid establishment of a park of minimum acceptable size.

In March 1946, Governor Caldwell responded to the NPS proposal on establishing the park that had been conveyed in Secretary Ickes’s January 8 letter and a follow-up letter from Vinten dated February 26. Caldwell agreed 1) that the park would be established when all the lands within the minimum boundary on Ickes’s map had been conveyed to the federal government subject to any restrictions contained in the IIF’s 1944 deed; 2) that it was “understood” that acquisition of all lands within the boundary would be accomplished within the ten-year limit set in the 1944 act; and 3) that the establishment of the park based on the minimum boundary did not preclude future park expansion, and the state understood that the acquisition of “additional drainage areas” would probably be required. The 1944 deed had a provision reserving to the state oil, gas, and mineral rights, and there would be considerable negotiation over this point before a final agreement could be reached. Caldwell now moved forward with the reinvigoration of the ENPC and began to solicit suggestions for members.

A Revitalized Everglades National Park Commission

Governor Caldwell in April named 25 Floridians to a reconstituted Everglades National Park Commission. These appointments were made in an effort to ensure broad support for the park’s establishment across the state. Key appointees were John Pennekamp, Harold Colee, and August Burghard, an advertising man from Ft. Lauderdale. Ray Vinten later related that he, Pennekamp, and Colee presented a list of 50 names from which the governor selected 25. Four veterans of the 1930s version of the commission, D. Graham Copeland, May Mann Jennings, Mrs. T. V. Moore, and Norberg Thompson, were named. Dr. E. C. Lunsford, a Miami dentist who had purchased a considerable tract at Cape Sable in hopes of building a resort, was also appointed. Eighteen of the members and the commission’s Managing Director Gilbert Leach were present when Caldwell kicked off the first meeting in Miami on May 25, 1946. Vinten, NPS Regional Director Tom Allen, and Refuge Manager Dan Beard were also on hand. Governor Caldwell started by stating that he believed that conditions were

now right for the ENPC to begin raising funds for purchasing land for the park. He named August Burghard as temporary chairman of the commission (a position that was made permanent in July 1946) and turned the meeting over to him.\[239\]

The April meeting of the ENPC was primarily concerned with bringing members up to date on the project’s history, matters of organization, and brainstorming about fund-raising. It was still hoped that some landowners would donate their holdings or accept state-owned land outside the park boundary in exchange. With the proceeds of a nationwide fund-raising effort, the commission hoped to be able to purchase the remaining land. John Pennekamp thought that the total sum required would not exceed $2 million and might be as little as $500,000. The commission elected an eight-person executive committee, which was expected to handle the bulk of the work to be accomplished. The committee consisted of:

- August Burghard, advertising agency head, Ft. Lauderdale
- John D. Pennekamp, associate editor, Miami Herald, Miami
- Karl Bickel, president, Florida State Historical Society, Sarasota
- Mrs. W. S. [May Mann] Jennings, Florida Federation of Women’s Clubs, Jacksonville
- Harold Colee, executive vice president, Florida State Chamber of Commerce, Jacksonville
- D. Graham Copeland, Collier County Commissioner, Everglades City
- General Albert H. Blanding, Tallahassee
- John H. Perry, publisher, Palm Beach Post

On the day following the Miami meeting, Vinten, Allen, and Beard escorted twelve commission members on a tour of the park area, which included a boat trip through Whitewater Bay and up Shark River and dinner at the lodge at Royal Palm State Park.\[240\]

The ENPC executive committee held its first meeting in June 1946 at Dr. Lunsford’s vacation home on Windley Key (located between Plantation Key and Upper Matecumbe Key). Regional Director Allen, Vinten, Beard and McGregor Smith, president of Florida Power & Light Company (FP&L) were present. The FP&L, believing

\[239\] The full ENPC membership roster: John D. Pennekamp, Miami; J. Kennard Johnson, Miami; Leonard K. Thompson, Miami; Dr. E. C. Lunsford, Miami; Mrs. T. V. Moore, Miami; August Burghard, Ft. Lauderdale; D. Graham Copeland, Everglades City; John H. Perry, Palm Beach; Carl Brorein, Tampa; Karl Bickel, Sarasota; Martin Anderson, Orlando; Mrs. W. S. Jennings, Jacksonville; Harold Colee, Jacksonville; Fayette Holland, Jacksonville; Richard D. Pope, Winter Haven; Mrs. Joseph L. Gray, Lake City; Mrs. Gillen McClure, Apopka; A. B. Michael, Webasso; Norberg Thompson, Key West; A. Cliff Johnson, Pensacola; G. C. Ware, Leesburg; General Albert H. Blanding, Tallahassee; Joe Hall, Tallahassee; Nelson D. Poynter, St. Petersburg; and Carl Hanton, Ft. Myers. “Glades Group Hopes to Get Land by 1949,” Miami Herald, Apr. 26, 1946; Daniel Beard, Manager, Everglades NWR, to C. R. Vinten, Apr. 5, 1946, EVER 22965, ser. I, sub. A, box 1; C. Ray Vinten, interview by Boyd Evison, Apr. 6, 1971, transcript, St. Augustine Historical Society.

\[240\] Organization Meeting of the ENPC, Apr. 25, 1946, CP, EVER 19430.
that the national park would bring tourists and tourist development to Florida, was a strong supporter of the park project. The company had already donated legal services to the ENPC. At this meeting McGregor Smith agreed to pay the printing costs for commission stationary; FP&L later underwrote 100,000 copies of promotional postcard of the park. Already some roadblocks were being encountered in the proposed land acquisition effort. The Trustees of the IIF, who had to approve all exchanges involving state lands, were raising a number of questions and making it clear that they were not going to trade valuable land elsewhere in the state for Everglades land “with practically no surface value.” A letter from the governor asking landowners to donate their holdings for the park had not been approved and was the subject of some discussion. When the letter was sent in July, no donations were forthcoming.

The executive committee met again on October 21, 1946, in Jacksonville. Spezzard Holland, who by this point was a U.S. Senator,242 Regional Director Allen, Ray Vinten, Dan Beard, C. Kay Davis of the SCS, and Fred Elliot of the IIF also were present. The intricacies of exchanging land and the details of a fund-raising campaign were again discussed. John Pennekamp was getting impatient and suggested that the commission redirect its efforts toward getting a $2 million appropriation for land acquisition from the state legislature. Director Drury a few days later also expressed himself “disappointed in the accomplishments of the Commission to date.” There continued to be discussions among Governor Caldwell, the Trustees of the IIF, and the NPS over how to handle the oil rights on the lands the state was donating.

The Final Steps Leading to Park Establishment

Director Drury came to Miami in January 1947 to meet with the ENPC executive committee. In addition to the director, Regional Director Allen, Vinten, and Beard were present. Prior to the meeting, Dan Beard stressed the importance of Drury make some firm commitments to rapid development of the park in order to get a legislative appropriation. When Chairman Burghard pressed the NPS representatives about their development plans, Allen said it was difficult to predict because a master planning process needed first to occur. Drury agreed to send the commission some information on what had been done in other national parks and thought he could provide “a

242 Holland had been elected to the Senate in May 1946 to replace retiring Senator Charles Andrews. Andrews then died in office, and Holland served the remainder of Andrews's last term, beginning September 25, 1946.
general outline of what the general development” might be in the Everglades. The executive committee now believed that mounting a major fund-raising campaign would take a considerable amount of time and was uncertain of success. It decided that an appropriation from the state legislature would be a faster and surer way to proceed. Pennekamp stressed the importance of having a delegation from the commission meet with Governor Caldwell to sell him “on this idea of a legislative appropriation for land acquisition.”

Pennekamp believed that it would require a great deal of persuasion to get the governor to ask the legislature for money for land acquisition. When he learned that the governor was to be in Miami on March 1, Pennekamp, Gilbert Leach, and some other Everglades National Park Commission members arranged a meeting with Caldwell. C. Kay Davis of the SCS came along and showed maps of the proposed park and its access roads to the governor. Much to the commission members’ surprise, Caldwell agreed to push for an appropriation, if that would lead to rapid establishment of the park. Caldwell then met with Vinten and Beard and was able to persuade the Trustees of the IIF to allocate $500,000 from their treasury to land acquisition for the park. The governor tentatively agreed to ask the legislature for an additional $1.5 million.

A meeting of the ENPC executive committee preceded an open meeting of the commission in Ocala on Saturday, March 8. Pennekamp explained to the executive committee what had transpired in Miami and Tallahassee in the past week. The executive committee had urged Directory Drury to attend, but he could not, and Ray Vinten represented the director. In the open session, the commission members committed themselves to vigorously lobbying the state legislature for an appropriation. They also decided to press the NPS to take responsibility for acquiring land with the expected state funds. It was now clear that most privately held lands would have to be obtained through condemnation proceedings. The commission believed that federal court proceedings would move much more quickly than state action. They and the governor also no doubt felt that it would go down better for them politically if the federal government, rather than the state, was the one filing condemnation actions against reluctant land owners. When the ENPC meeting adjourned at 4:15 pm, Robert H. Fite, a Florida Power & Light Company vice president, invited the male commission members and some guests to repair to a company camp at Orange Springs for dinner and an overnight stay. He apologized to the women commission members that the camp had no facilities for them. There is no evidence that the intent was to exclude the women because they had different viewpoints. Rather, in the climate of the late

245 RDR1 Allen to Dir. Drury, Mar. 10, 1947, Gilbert Leach to J. E. Stranahm, Exec. Sec. to Gov. Caldwell, Mar. 3, 1947, Gov. Caldwell papers, box 26; Notes of Executive Committee Meeting of ENPC, Mar. 8, 1947, EVER 58941.
Chapter 4: The Long and Winding Road to Park Establishment

1940s, it was taken for granted that men were the ultimate decision-makers and that the stag atmosphere of a fish camp was not appropriate for women. Ray Vinten later wrote to Regional Director Allen, “the discussions and decisions made at this camp were probably of greater significance than those made at the formal meeting.” The women commission members were not involved in those decisions, although nothing indicates they would have opposed them.246

Among the guests at the camp that Saturday evening were two powerful state senators, B. C. “Bill” Pearce of Palatka and W. A. Shands of Gainesville. Pearce and Shands were leaders of the “Pork Chop Gang,” the North Florida representatives who pretty much controlled the state legislature in this period. The senators, John Pennekamp, and some others got a poker game going. As Pennekamp later told it, he had a phenomenal run of luck that day. “I won hand after hand. Made uncanny draws.” Finally Pearce asked in disgust, “Just how much money do you need for that god-damned park of yours?” Pennekamp said the sum was two million dollars, and Pearce replied, “Why don’t you come on over to the Legislature and get it instead of taking it out of our pockets?” Pennekamp always insisted that this informal pledge over a poker hand was the key to eventually getting the state appropriation. Of course, by this point, the governor as well was behind the idea. The legislature also had shown its enthusiasm for tourist promotion via its 1945 appropriation of $1 million. It seems likely that the economic benefits of a national park were finally becoming apparent even to the Pork Chop Gang.247

On March 14, 1947, Secretary Krug officially accepted the deed that the state of Florida had prepared in December 1944 conveying state lands to be protected as a U.S. Wildlife Reserve. The state had already granted oil and mineral leases on some of these lands, and to that point, it had insisted on retaining the rights on the remainder. DOI attorneys studied the 1944 federal law that provided for a smaller park. The act allowed the secretary to establish the park when he had accepted title to “a major portion” of lands within a park boundary to be selected by him. If the state could be persuaded to give up its reserved oil rights on lands where the rights had not been sold, and such acreage amounted to more than the acreage covered by reserved rights, the terms of the law would be satisfied. The outlines of a grand bargain were now visible.248

Intensive talks took place at the very end of March and beginning of April 1947. Senator Holland in Washington met many times with NPS officials and Secretary Krug. In Florida, Ray Vinten was in close contact with Governor Caldwell and John

246 C. R. Vinten to RDR1 Allen, Mar. 11, 1947, NARA II, RG 79, NPS CCF, box 901; Notes of ENPC Meeting, Mar. 8, 1947, EVER 58941.
Pennekamp. The secretary expressed a willingness to establish a park of about 706 square miles, if the state agreed to give up its reserved oil, gas, and mineral rights on some 380 square miles. The United States would be accepting in fee simple some 54 percent of the park lands, thus satisfying the “major portion” provision of the 1944 act. The state insisted on a provision where it would receive royalties if the NPS ever were to allow oil exploration on the fee simple lands. As mentioned above, Humble Oil Company’s had been drilling north and south of the Tamiami Trail; Humble and other oil producers had not given up on the potential of the Everglades to produce petroleum in marketable quantities. It was generally understood that the NPS was unlikely to allow such exploration on land it owned except during a dire national emergency. In return for urging the legislature to pass the $2 million appropriation, Governor Caldwell received assurances that the federal government would handle land acquisition, that the NPS would move rapidly to condemnation, and that the park soon would be declared established, before the end of 1947 if at all possible. Lands that had been conveyed to the federal government on which the state had already granted oil leases would remain under FWS protection until the leases expired, when they would be added to the park. The IIF agreed to amend the terms of the 1944 deed in accordance with these terms. It was later determined that additional federal legislation would be required to specifically authorize federal purchase of land using state funds (see chapter 6).249

Secretary Krug sent a telegram to Governor Caldwell on April 2, 1947, stating the terms of the bargain that had been hammered out. The key sentence:

I agree to establish a new minimum area of approximately 706 square miles as the Everglades National Park as soon as satisfactory title to major portion or more than half thereof is transferred by the State to the Federal Government for park purposes and two million dollars has been made available by the State for the acquisition of privately owned lands.

On April 3, Governor Caldwell wired Secretary Krug that he was sending the $2 million appropriation to the legislature with his endorsement and agreed to the other provisions of the deal.250

On behalf of the Florida congressional delegation, Senator Holland on April 5 announced the terms of the bargain that would soon lead to the establishment of Everglades National Park. Holland paid tribute to Governor Caldwell for completing the deal and praised the decades-long conservation work of the Florida Federation of


Chapter 4: The Long and Winding Road to Park Establishment

Figure 4-4 Park Boundary at Establishment, 1947
Women’s Clubs and the Audubon Society in the Everglades. The state senate passed the $2 million appropriation unanimously on April 16 and the House passed it with only six no votes the next day. The governor then signed the bill on April 24. The Trustees of the IIF took rapid action to fulfill their obligations, with only Attorney General Watson continuing to dissent. Watson was gearing up for a run for governor in 1948 and had decided to position himself as the champion of the state’s valuable oil and mineral rights in the Everglades. Watson filed a number of lawsuits attempting to stop the park’s establishment, all of which were eventually dismissed (see chapter 6).251

Once a check for $2 million was received from the state, Secretary Krug on June 20, 1947, signed Secretarial Order No. 2338, officially establishing Everglades National Park. The park consisted of 710 square miles (454,400 acres) (figure 4-5, park boundary at establishment). The secretary noted that an additional 461,482 acres of submerged lands and islands and extensive acreage north of the park was in federal ownership and being administered as a wildlife reserve. When oil leases on this land expired, they would become part of the national park. With the addition of this acreage and the purchase of private holdings, a park ultimately embracing 2,000 square miles was envisioned. At last, almost nineteen years after Ernest Coe had established the Everglades National Park Association, Everglades National Park was reality.252

Chapter 5: First a Wildlife Refuge, Then a National Park

The Everglades National Wildlife Refuge

World War II was not over in spring 1945, when the U.S. Fish & Wildlife Service (FWS) became responsible for patrolling 400,000 acres in the Everglades under the agreement worked out with Governor Holland. The preserve was a discontiguous collection of state- and federal-owned land, supplemented by a few private parcels where owners had granted easements to the FWS. FWS personnel began limited patrols in the Everglades National Wildlife Preserve around May 15, 1945. The service saw its mission as limited largely to attempting “to prevent rare species from becoming extinct,” i.e., protecting the large bird rookeries. Both the FWS and NPS expected that a national park would be established within 10 years, and that no development to accommodate visitors would occur until NPS was in charge. Managers in the Department of the Interior wanted Dan Beard, who was familiar with the area from his work on the 1938 Wildlife Reconnaissance (see pages 109-112 above), as refuge manager. Beard had been drafted into the U.S. Army in March 1944 and was stationed at Fort Bliss, Texas, as a training sergeant in early 1945. It required two letters from Secretary of the Interior Ickes to the secretary of war, Henry Stimson, to get Beard discharged from the Army. In January 1945, before Germany had surrendered, Stimson refused to let Beard go. Ickes wrote again in late May after Germany’s surrender, but the Army waited until Japan’s surrender in August, finally discharging Beard in October. At the time of his discharge, Beard was stationed at Alamogordo Army Air Field (later renamed Holloman Air Force Base).

On October 26, 1945, Dan Beard took charge as manager of the Everglades National Wildlife Refuge from interim manager Claude F. Lowe Jr. Beard was able to set up his office at a USDA plant introduction facility in Coral Gables, known as Chapman Field because of an adjacent airstrip. The following February, Beard filed a report with the FWS regional office in Atlanta. He noted that the increased use of airboats and Glades buggies was making access to remote areas of the Everglades considerably easier.

253 Because of the discontiguous array of parcels, no map of the preserve seems to have been prepared; at least, none has been located.
Airboats were developed by mounting an airplane propeller on a shallow draft boat, allowing for high speed travel in shallow waters (figure 5-1, airboat). A Glades buggy, known sometimes as a swamp buggy, used oversized balloon tires set high off the ground, permitting overland travel in marshy areas (figure 5-2, Glades buggy with treads). These innovative vehicles made it easier for wardens to patrol deep in the Everglades, but they likewise provided access for hunters and plant collectors. Beard thought that Glades buggies should be banned in the refuge and the use of airboats limited. The new refuge manager also forwarded a wish list of desired equipment to his superiors. He wanted an airplane, two cabin cruisers, a houseboat, two Glades buggies, one or two airboats, three trucks, and a station wagon. During the period that it patrolled in the Everglades, the FWS gave greatest attention to protecting rookeries. Wardens also tried to discourage the taking of deer and alligators and achieve better enforcement of state fishing regulations. To make this easier, in October 1946, Governor Caldwell established a state game refuge in the Everglades and deputized Beard and his small staff as state conservation agents. The commissions went to Claude F.
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Lowe Jr., Jack C. Watson, and James V. Kellum. Another warden was Marcus Barney Parker, who already had a state commission, having protected rookeries as an Audubon warden. Barney would later become an NPS Everglades ranger. The FWS had wardens based at Royal Palm State Park, at a private fish camp on Coot Bay, and in the keys. Refuge Manager Beard saw educating the public as a major part of his responsibilities. He preached conservation everywhere that he went. Additionally, he attempted to persuade commercial fishermen to abide by the state regulations governing fishing in Florida Bay, something that the NPS felt the state had never pursued. Beard’s staff worked with state wardens to identify and confiscate illegal nets and made some progress with fishermen. Beard established a working relationship with Kenneth Marmon, superintendent of the Bureau of Indian Affairs Seminole Agency at Ft. Myers. He was clearly looking ahead to the time when the national park

Figure 5-2. A glades buggy with treads, circa1947, photograph by Wolfe Studios

would be established and decisions would need to be made about Indian camps within the park boundary. In the winter of 1946-1947, the National Audubon Society began offering to the public, for a fee, guided tours of some of the bird rookeries in the Everglades refuge (see chapter 20). The tour leader was typically Charles M. Brookfield, head of the Tropical Audubon Society. With the FWS barely able to provide protection for the bird rookeries, this visitor-oriented activity by Audubon was welcome. Seasonal Audubon tours continued through the winter of 1960/1961.256

As detailed above in chapter 4, Secretary of the Interior Julius Krug declared the establishment of Everglades National Park on June 20, 1947. The FWS would continue to patrol areas that had not yet come into federal ownership (Florida Bay in particular) until spring 1950, while the NPS began the task of asserting control of a new national park and planning its development. NPS managers seriously considered two men as possible park superintendents: Dan Beard and C. Ray Vinten. Region One Director Thomas J. Allen noted that at one time Vinten might have been interested in the post, but that he was finding his role as coordinating superintendent for southeastern parks and monuments increasingly rewarding and had firmly rooted himself in St. Augustine with the purchase of a house. Allen further observed that Beard “is more thoroughly acquainted with the area than any other person either in or outside the Park Service.” Dan Beard was also well known in the NPS because of his father’s prominence as a conservationist. The regional director called Beard “a natural for the position.” Director Drury agreed and announced Beard’s appointment as the first superintendent of Everglades National Park on September 23, 1947. Gerald F. Baker then became the manager of the Everglades National Wildlife Refuge.257

Planning the Dedication of Everglades National Park, December 6, 1947

One of the first tasks confronting Dan Beard was planning for the official dedication of the new park. Beard would have preferred to defer the ceremony until the park had built some facilities to accommodate visitors, but public sentiment in Florida demanded an early dedication (figure 5-3, program for park dedication). The state was proud of its $2 million appropriation for land acquisition and believed it should be recognized with a prominent and timely park dedication. Secretary of the Interior

Figure 5-3. Program for the Everglades National Park dedication, December 6, 1947
Krug agreed that an early dedication was desirable. Because the newly established park had a small staff and limited appropriations, the Everglades National Park Commission (ENPC) stepped in, making most of the arrangements and paying for many of the expenses of the dedication. From the very beginning, all concerned believed in the unmatched promotional value of having President Truman speak at the dedication. The president had established a Winter White House not far away at Key West, making it more likely that he could fit in a visit to the Everglades for the dedication. As late as November 17, Truman was unwilling to commit to an appearance, partly because of a special session of Congress, but he finally agreed to attend.258

Following some informal discussions about the dedication, the ENPC executive committee on April 26, 1947, formed a special dedication committee. The committee was chaired by McGregor Smith of FP&L and had Harold Colee, G. G. Ware, Karl Bickel, Joe Hall, and Kennard Johnson as members. ENPC chair August Burghard and executive committee members John Pennekamp, Will Preston, and Gilbert Leach pledged themselves to assist in any ways they could. By the time the executive committee met again at the end of September, it had reasonable assurance that the president would be available, and December 6 was set as the date for the dedication. After discussing Royal Palm State Park, Hialeah Race Track, Crandon Park on Key Biscayne, and the Orange Bowl Stadium as possible sites, the committee agreed that “Everglades City would be the logical place for the dedication.” Miles Collier was a guest at this meeting, and his assurance of considerable financial and logistical support from the Collier Corporation surely played a role in this choice of venue. Among the early decisions were that there would be a fish fry for invited guests prior to the dedication, that Seminole Indians should be invited, and that the president would be entertained at the Rod and Gun Club in Everglades City (figure 5-4).259

Further planning for the dedication took place at a combined meeting of the ENPC executive and dedication committees on-site in Everglades City on October 19, 1947. Superintendent Beard, Regional Director Allen, and Ray Vinten all attended the meeting, held at the Everglades Rod and Gun Club. After inspecting several sites, the group decided that the dedication would take place about a mile south of the center of town “at the bend of the river, north of the airstrip.” A local arrangements committee headed by Miles Collier, as well as a program committee and an invitation committee, both under John Pennekamp, were established. McGregor Smith reported that plans for the fish fry were well in hand, and Miles Collier agreed to contact the Ringling Brothers Circus in Sarasota to borrow bleachers, folding chairs, and a tent.

259 ENPC Executive Committee Notes, Apr. 26 and Sep. 25, 1947, EVER 58941.
(to be used in case of rain). Two more meetings in Miami in October and November resulted in additional decisions, including that a select group would have lunch with President Truman at the Rod and Gun Club. John Pennekamp announced “that it was decided to serve dry martinis before the Club luncheon.” Later, in 1972, a newspaper reported that a silver dollar was embedded in the club’s bar counter, marking the spot where Truman set down his cocktail. Subsequent remodelings at the club have left no trace of this unique memorial. Consultations among the Secret Service, the Florida Highway Patrol, the U.S. Navy, and the Collier County Sheriff helped ensure the safety of both the president and visitors. Later reports indicated that the Secret Service demanded that several bridges on the Tamiami Trail between Naples and the road to Everglades City be repaired before the event.260

Figure 5-4. Everglades Rod & Gun Club, Everglades City

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260 Meeting of ENPC Program and Invitation Committees, Oct. 28, 1947, Meeting of ENPC Executive Committee, Nov. 26, 1947, EVER 58941; Tom Morgan, “HST Came to Park’s Dedication in Moment of High Drama Here,” Miami Herald, Dec. 27, 1972. The Miami Herald made reference to an “Amazon Brigade” of 50 African-American women who were working to prepare the site for the dedication, “Everglades Scrubs Ears for Gala Day,” undated article [Nov. 47], EVER 42054.
Everglades National Park Commemorative Postage Stamp

On the day before the dedication, a U.S. commemorative postage stamp honoring Everglades National Park was issued at the Florida City Post Office. The decision to issue the stamp, which added considerably to the national attention given to the park's dedication, arose from discussions involving Florida Power & Light's chief legal representative, Will M. Preston. One of Preston's legal partners, Paul R. Scott, was a good friend of Postmaster General Robert E. Hannegan. Scott obtained Hannegan's backing for the stamp, and the entire Florida congressional delegation lined up behind it. Through the efforts of John Pennekamp, Garnett Megee, a Miami artist and former employee of the U.S. Bureau of Engraving, was commissioned to design the stamp. Megee's design featured a great white heron with the map of Florida as a backdrop. Superintendent Beard approved the representation of the heron. A ceremony in Florida City on December 5, 1947, marked the first day of issue of the Everglades commemorative three-cent stamp (figure 5-5). Regional Director Allen and Governor Caldwell spoke to attendees, and the Homestead High School Band played musical selections. Third Assistant Postmaster General Joseph J. Lawler presented special albums containing stamps to Governor Caldwell, Senator Holland, Paul Scott, Will N. Hannegan was postmaster general from May 1945 to December 1947.
Preston, and John Pennekamp. First-day cancellations of the Everglades stamp totaled
466,647, and 802,500 stamps were sold, bringing in $24,075 to the federal treasury.262

The Publication of *The Everglades: River of Grass*

Another event that added to the éclat of the park’s dedication was the publication the previous month of Marjory Stoneman Douglas’s book, *The Everglades: River of Grass*. From early on, Douglas had supported the creation of a national park in the Everglades and had maintained her membership in the ENPA. Throughout the 1930s and early 1940s, she pursued a very successful career as a writer of short stories, several of them set in the Everglades. She had not, however, been a leader in lobbying federal and state officials on behalf of a national park. That she ended up writing the most celebrated and widely read book on the Everglades may almost be said to have been a result of happenstance (figure 5-6, Marjory Stoneman Douglas).263

Douglas’s friend, the novelist Hervey Allen, was co-editor of the Rivers of America series put out by Farrar and Rinehart. Allen had a winter home south of Miami on the edge of the Everglades.264 One day in 1943, he visited Douglas and asked if she would be interested in writing a book on the Miami River for the series. As she considered the idea, Douglas thought she could write a far more compelling book about the Everglades, with the tiny Miami River included as a sidelight. John Pennekamp of the Miami Herald put her in touch with Garald Parker, a U.S. Geological Survey scientist then studying the water supply for the cities of Southeast Florida. As Douglas remembered it, she asked Parker, “Do you think I can get away with calling it the river of grass?” He replied that he thought so. Douglas spent the next three years researching and writing the book, relying heavily on Parker’s insights on the hydrology and ecology of the Everglades. Among many others, she also consulted archeologist John M. Goggin, C. Kay Davis of the U.S. Soil Conservation Service, local naturalists David M. Fairchild and Dr. John C. Gifford, and David O. True of the Historical Association of South Florida.265

Combining ethnography, history, geography, and natural history, Douglas’s book appeared in early November 1947 to rave reviews. Farrar and Rinehart’s first printing

264 Allen burst upon the literary scene with his hugely successful 1933 historical novel, *Anthony
Adverse*, which sold more than 750,000 copies in its first three years. James D. Hart, *The Popular
Book: A History of America’s Literary Taste* (Berkeley: University of California Press, 1950), 261-
262.
of Grass, 60th Anniversary Edition* (Sarasota: Pineapple Press, 2007), 386-390; Marjory Stoneman
of 7,500 copies sold out by Christmas, and *The River of Grass* has not been out of print since. *The Reader's Digest* published a story from the book, “An Early Pocahontas,” in its December 1947 issue. Noted authors like John Hersey, Marjorie Kinnan Rawlings, and Harnett T. Kane wrote glowing notices. Writing in the *New York Herald Tribune*, Pulitzer-Prize winner Hersey observed that Douglas “has put into this description an unearthliness, a strong rhythm, a compactness of natural imagery that is dazzling, and, above all, an organization and discipline that approaches poetic form.”

The most knowledgeable reviewer was Dr. Junius E. Dovell, writing in the *Florida Historical Quarterly*. Dovell had recently completed a doctoral dissertation on the history of the Everglades, one that remains useful to this day. Dovell pointed out a number of errors in the book, which Douglas corrected in subsequent editions. Overall, he was complimentary, concluding that the book was “an outstanding contribution to the growing body of published Floridiana, one that is greatly needed.” Because Douglas’s book so thoroughly satisfied the public’s demand for a book on the Everglades, Dovell was never able to find a publisher willing to turn his meticulously documented dissertation into a book.266

as the park was dedicated, *The Everglades: River of Grass* brought a great deal of positive attention to the area, surely motivating many Americans to visit the new national park.

**Dedication Day, December 6, 1947**

To protect the crowd at the dedication ceremonies at Everglades City from mosquitoes, U.S. Navy aircraft sprayed DDT on 500 acres surrounding the Everglades airport. Although the toxicity of DDT and other pesticides was little understood at this time, at least three Florida residents wrote letters complaining of the effects of the spraying on wildlife. Herman C. Shuptrine of Tampa called it “a slap in the face of every conservationist . . . in the State of Florida.” NPS Director Drury looked into the matter and concluded that because the dedication site was 22 miles from the nearest park lands, it “could have no possible effect on the Park.”

Figure 5-8. Miccosukee shirt given to Superintendent Dan Beard at park dedication, now at South Florida Collection Management Center
December 6 was a typically sunny, late fall South Florida day. President Truman arrived in Naples from Key West on his plane, the *Sacred Cow*. On the tarmac to meet him was Governor Caldwell. The president was behind the wheel as the motorcade set off for Everglades City, where Secretary Krug and Senators Holland and Claude Pepper were waiting. In Everglades City, William McKinley Osceola, Cory Osceola, and Ingram Billie gave Truman a traditional Seminole shirt, sewn by William’s wife from 5,000 pieces of cloth (figure 5-7, Miccosukee Indians presenting shirt to Truman). The Indians later presented similar shirts to Secretary Krug and Superintendent Beard (figure 5-8, Miccosukee shirt given to Dan Beard).  

They also presented a handbag of palmetto fibers with buckskin handles for Mrs. Truman and a tribal flag that the president said he would pass on to his daughter Margaret. At the airport some 2,000 enjoyed fried mullet, hush puppies, beans, coleslaw, and pickles. Meanwhile, the presidential party had cocktails, stone crab, key lime pie, and a large cake in the shape of the Florida peninsula at the Rod and Gun Club. Truman and the VIPs arrived ten minutes early at the temporary grandstand that had been prepared, and the formal dedication events kicked off promptly at 2:00 pm.

Master of Ceremonies John Pennekamp first introduced Deaconess Harriet M. Bedell, of the Glade Cross Mission in Everglades City, who gave the invocation. August Burghard then presented a plaque in the shape of the park to Ernest Coe, whose bitterness over not getting the larger park that he dreamed of made him a reluctant participant in the dedication. Coe later acknowledged to Burghard that he had to be persuaded to come forward, but that “in being human I loved it and thank you.” Director Drury recognized the pioneering efforts of the Florida Federation of Women’s Clubs in establishing and safeguarding Royal Palm State Park. Mrs. Jennings was an honored guest, and Drury presented a plaque to her. Senators Pepper and Holland made brief remarks, Governor Caldwell formally presented the area on behalf of the state, and Secretary Krug formally accepted it on behalf of the federal government. The President’s address came next, followed by the benediction, given by the Reverend E. A. Finn, and the singing of the national anthem by Wah Nese Red Rock, a member of the Ojibwa Totem Tribe who lived in Florida at the time (figure 5-9, President Truman dedicating the park). The Fort Myers High School Band played selections during the ceremonies. Attendance was estimated at 4,500 by the *New York Times* and 7,000 by the ENPC. The Florida Highway Patrol later announced that not a single automobile accident had occurred.

268 Dan Beard’s colorful shirt is now in the collection of the South Florida Collections Management Center.

269 Bedell came to the Everglades in 1933 and received permission from the Episcopal Diocese of South Florida to establish a mission to the Seminoles (see chapter 19).

Because Truman had waited until the last minute to confirm his attendance, his speech was not drafted in the White House, but was prepared by the NPS. Beyond dedicating a new national park, President Truman reaffirmed his administration's natural resource management goals and conservation policies in his address, which was printed in full by the *New York Times*. Truman called the park’s establishment “another great conservation victory” that “enrich[ed] the human spirit.” He went on to emphasize the importance of conservation of natural resources to the nation’s economic well-being. The President noted that “[f]ull conservation of our energy resources can be accomplished by continued construction of dams, hydroelectric plants and transmission lines; by greater use of natural gas.” As historians like Karl Boyd Brooks have shown, the Truman administration departed from the Roosevelt administration in emphasizing “wise-use” conservation over preservation, and the president’s remarks reflected this shift. Truman closed his address by reemphasizing the inspirational qualities of national parks:

As for conservation of the human spirit, we need places such as Everglades National Park, where we may be more keenly aware of our Creator’s infinitely varied,
infinitely beautiful, and infinitely bountiful handiwork. Here we may draw strength and peace of mind from our surroundings.\textsuperscript{271}

The NPS, the ENPC, the Florida Democratic Party, and the state’s newspapers all seemed very pleased with the park’s dedication and the coverage it received. Portions of the ceremony, including the presidential address, were broadcast nationally by the National Broadcasting Company and the Mutual Broadcasting System (figure 5-10, Audience at park dedication). Everyone from the Collier Corporation to the Florida National Guard seemed eager to make the day a success. Contributions to the dedication from companies and individuals were valued at $2,138, equivalent to almost $23,000 in 2014. In addition to underwriting the fish fry and other expenses, the ENPC gave all the surplus plywood and other salvageable materials from the event to the park.\textsuperscript{272}


\textsuperscript{272} Miles Collier to Gilbert D. Leach, Managing Director, ENPC, Dec. 12, 1947, Gov. Caldwell papers, box 26; ENPC Meeting Minutes, Jan. 11, 1948, EVER 58941.
Ernest F. Coe: A Summing Up

Ernest F. Coe, consistently regarded since 1947 as the father of Everglades National Park, lived to see its first three years of operation (figure 5.11, Coe letter with attached leaf). He never stopped urging the NPS to move immediately to acquire all the land within his original boundary. As he had with hundreds of others, Coe called on Superintendent Beard to share his thoughts on the Everglades. Coe was increasingly embittered and impoverished in the last years of his life. After his wife died in July 1940, Coe invited a Mr. and Mrs. Hane, who had worked in various capacities on his property, to live with him. The Hanes stayed on for more than 10 years, cooking, cleaning, and caring for him. Toward the end of Coe’s life, they also apparently covered his living expenses and loaned him money. Coe believed that the ENPA and ENPC owed him something like $25,000 in back salary. The bulk of this was due from the ENPA; as of February 5, 1948, Coe calculated that the association owed him $13,949.08. For about two years, until Governor Cone demanded his resignation, Coe drew $4,000 a year as executive chairman of the ENPA, at a time when the median family income in the U.S. was $1,160. Surviving records do not indicate Coe’s annual ENPA salary and how often the salary could not be paid. The association did pay his travel expenses and the maintenance on his private automobile for extended periods. At times, Coe seemed to think the federal government also was in his debt, noting that “another plan is to ask Congress for an annuity for me on the basis that I have done a great national service.” Within six months after the park’s dedication, Coe’s friends were seriously concerned about Coe’s finances and mental state. In June 1948, Pennekamp wrote Regional Director Allen, “He has a great many people disturbed down here with almost daily threats that he is going to commit suicide because he has no money and has exhausted all of his resources.”

Many in the Miami area tried to help Coe, but he was a proud man and refused most assistance. He accepted fairly regular checks from family members in other parts of the country, but the Rotary Club of Miami and others resorted to subterfuge to assist Coe. The Rotarians, for example, paid to have the garage on Coe’s lot renovated to rent out as an apartment. Finally, the NPS came up with a way to help that was acceptable to Coe; he was hired as a “collaborator” to work on a chronological history of Everglades National Park. He eventually received about $1,000 for this work. His “Story of the Everglades National Park Project from the Inception of the Idea, Including Its Establishment and Dedication” may be consulted in the South Florida Collections.

Management Center. Although financial compensation proved meager, honors came
Ernest Coe's way in his last years. The Massachusetts Horticultural Society bestowed
its highest award, the George Robert White Medal, on Coe in 1948. The Fairchild Bot-
tanical Garden gave him its Thomas Barbour Medal, and in 1947, Dade County made
him one of its Citizens of the Year. Shortly after delivering the manuscript of his park
history to the NPS. Coe became ill. He went into the hospital in December 1950 and died on January 1, 1951, at age 84.²⁷⁴

Horace Albright captured Ernest Coe’s place in the Everglades National Park story as well as anyone, when he wrote him at the time of the park’s establishment:

I wanted to . . . salute you as the man that not only dreamed of this great park, but planned it and through many years of discouragement and disappointment that would have caused a less farseeing and courageous man to drop the project, carried on and won the victory for the American people. . . . [H]ad it not been for John Muir, there would have been no Yosemite. . . . and had it not been for Ernest F. Coe, there would have never been an Everglades National Park. So you join the immortals of the National Park System.²⁷⁵

**Asserting National Park Service Authority over the New Park**

In March 1947, five months before entering on duty as Everglades National Park’s first superintendent, Dan Beard offered NPS Region One his thoughts on the protection and administration of the area as a park. Expanding the protection of wildlife and beginning a program of fire protection were his top priorities. Beard was already thinking in terms of three ranger districts (see chapter 21). He submitted a wish list of required equipment similar to the one he had prepared for the wildlife refuge. In addition to standard ranger and clerical positions, Beard believed the park needed a naturalist, an aquatic biologist, and a landscape architect. Among the projects he thought immediately necessary were the plugging of the Cape Sable canals to retard salt water intrusion, establishing a ranger station at Shark River, repairs to the Ingraham Highway, and the partial backfilling of the Homestead Canal. Other tasks confronting the new superintendent and his staff were finding a site for park headquarters, working with the NPS land office in identifying and contacting land owners, and assisting visitors.²⁷⁶

Beard had been managing the wildlife refuge from an office in Coral Gables, but headquarters for the park could not be that far away. The superintendent was able to rent offices as well as garage and shop space in the Redlands Chamber of Commerce building at 65 Northeast First Avenue in Homestead, moving into these facilities in November. This remained headquarters until June 1953. A small staff was

²⁷⁴ Ernest F. Coe to members, ENPA, Mar. 19, 1948, Gov. Caldwell papers, box 26; Ernest F. Coe to Ed and Catherine, Jan. 29, 1949, CP, EVER 22822; Ernest F. Coe to NPS Acting Dir. Demaray, Aug. 8, 1949, NARA II, RG 79, NPS AF, box 1407; H. L. McCay, Sec., Rotary Club, to Louis A. Miller, University of Miami, Apr. 14, 1950, CP, EVER 22604; Alice Bennes to Friend, Jan. 4, 1951, CP, EVER 22863.


soon assembled: James H. Smith came on as chief clerk in September 1947, and Willard Dilley and Erwin Winte as the park’s first two rangers in October. Until September 1948, the park’s accounting and personnel functions were handled by the office of southeastern parks and monuments in St. Augustine. Appropriations for the park were $67,000 in fiscal year (FY) 1948 and $103,000 in FY1949. The NPS established a land office headed by Leon M. Gray at Dinner Key in Coral Gables in September 1947. The activities of this office and the history of park land acquisition are covered in chapter 6.

By October 1947, NPS rangers were making boat patrols in cooperation with FWS wardens. As of spring 1948, rangers were working out of the old Royal Palm Lodge (renamed the Royal Palm Ranger Station) and at Coot Bay, but the NPS as yet had no jurisdiction over Florida Bay. In October 1948, Beard noted that the “appearance of Mrs. Barnes [wife of Ranger Paul Barnes] in an historically bachelor environment [Coot Bay Ranger Station] is resulting in many, worthwhile changes.” The small NPS staff concentrated on protecting rookeries, but did what it could to limit illegal alligator hunting, fishing, and frog gigging. Beard’s early monthly reports note evidence of gator hunting and a confrontation with turtle hunters. Not until January 1949 were automobile counters installed, but Beard estimated visitation at 20,000 to 22,000 over the winter of 1947/1948. Visitors that first winter were reported to be largely understanding about the poor condition of the Ingraham Highway and the lack of restrooms and other facilities. By the second winter, however, Ranger Paul Barnes was reporting that “almost every visitor contacted complained bitterly about the unsafe condition of the road . . . [A] continuing majority of visitors are irked by lack of concession facilities at this [Coot Bay] station.” Rangers and the park naturalist gave programs at Royal Palm on weekends, but the interpretive program still needed outside assistance. Tropical Audubon continued its tours, and the ENPC produced the first park brochure in May 1948.

In the first years of administering Everglades National Park, the NPS faced a dilemma. There was considerable pressure from visitors and Florida opinion leaders to rapidly develop the park for visitor use. Land acquisition, however, was ongoing, so that any major improvements to Ingraham Highway or the addition of visitor facilities would almost certainly have driven up land values. How the NPS approached the responsibility of developing Everglades National Park is the subject of chapter 7.

277 The federal fiscal year (FY) differs from the calendar year. Until 1977, the federal fiscal year ran from July 1 to June 30. Beginning with FY1977, this changed to October 1 to September 30.
Chapter 6: Land Acquisition

As soon as Everglades National Park was established in June 1947, the NPS turned its attention to land acquisition. The NPS and the state understood that the 1947 minimum boundary, embracing 460,000 acres, was just a beginning and looked forward to a park of at least the 1.2 million acres as envisioned in the 1944 agreement brokered by Governor Holland. Because the $2 million for land acquisition came from the state and not the federal treasury, lawyers in the Department of the Interior decided that additional legislation was needed to explicitly authorize the use of condemnation with the state-donated funds. For this reason, the NPS began negotiating with willing sellers, while the Florida congressional delegation moved forward with the necessary legislation. As described below, the Service was able to negotiate purchases for about 65 percent of the private land; the rest had to be acquired through condemnation. Federal legislation signed on October 10, 1950, provided the authority for condemnation (see Appendix A).280 Because of pressure from land owners, the law also allowed owners to retain oil and mineral rights until 1958 and the right to receive royalties until 1985, if the federal government actually allowed oil production before the 1958 expiration date. With these issues resolved, the secretary of the interior in February 1950 issued an order expanding the size of the park to 1,228,500 acres. This order transferred to the NPS the areas still protected by the U.S. Fish & Wildlife Service and essentially confirmed the 1944 understanding between state and federal authorities.281

The NPS needed to purchase some 357,000 acres of privately held land to bring the park to the 1950 boundary. Some 85 percent of this acreage was held by just six absentee owners:

<table>
<thead>
<tr>
<th>Holding</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Land Company</td>
<td>210,000 acres</td>
</tr>
<tr>
<td>Palgrove Company</td>
<td>34,000 acres</td>
</tr>
<tr>
<td>Elizabeth Annat</td>
<td>28,000 acres</td>
</tr>
<tr>
<td>Sam and Harry Simonhoff</td>
<td>14,000 acres</td>
</tr>
<tr>
<td>Paradise-Prairie Land Company</td>
<td>13,500 acres</td>
</tr>
<tr>
<td>Dorothy Dewhurst Parker</td>
<td>10,000 acres</td>
</tr>
</tbody>
</table>

Clearly, the Model Land Company (MLC) holdings were key to the land acquisition question. If the NPS could negotiate what it considered to be a reasonable price with the MLC, this would establish a precedent for future purchases.

282 “Government Goes to Court to Get Glades Park Lands, Miami Herald, undated [May 1950], EVER 42054.
The NPS opened a land acquisition office in Coral Gables in September 1947, with Major Leon M. Gray as land acquisition project manager. Gray soon hired Albert B. Manly as a full-time appraiser and also used independent appraisers in Miami as contractors. Manly took over as manager upon Gray’s death in January 1949. The office began examining titles, doing appraisals, and identifying land owners willing to sell at an acceptable price. The NPS was annoyed, but not slowed down, by lawsuits filed by Florida Attorney General J. Tom Watson. Watson was in his second term as state attorney general and planned to run for the governorship in 1948. He decided that branding the park’s establishment a “federal land grab” would make a good campaign issue. Watson filed a number of lawsuits and appeals to try to stop the transfer of state lands to the federal government. All of the attorney general’s arguments were rejected by the courts, and his opposition to the park seemed not to resonate with Florida voters. In May 1948, Jacksonville attorney Fuller Warren easily defeated Watson in the Democratic primary. 

In addition to the MLC holdings, two properties at Coot Bay emerged as top priorities for acquisition. Just as the park was being dedicated, two land owners at Coot Bay were in the process of developing commercial sport fishing camps. The NPS was eager to buy them out before they had added improvements that would drive up the price. Both owners agreed to sell at approximately the amount they had spent on the land and improvements. In early 1948, the Service made these first two purchases from Mr. and Mrs. Louis Wilkerson and the Shark River Fishing Company for a total of $28,310. The NPS then used this semideveloped area at Coot Bay as a temporary ranger station and visitor contact point until more permanent development was in place (see chapter 7).

Negotiations with the MLC began in late 1947. The property in question had been deeded by the state to Henry Flagler’s Florida East Coast Railway in 1912 after the extension of the railroad to Key West. The railroad then sold the land to its real estate subsidiary, the MLC. The 210,000 acres embraced much of the land area of the park from about the latitude of Shark River south. Albert Manly later described the negotiations as “detailed and spirited, albeit friendly.” In November 1948, the company agreed to sell 135,000 acres for $115,000. An additional agreement concluded in May 1949 conveyed the remaining 75,000 acres for $180,000. The property was sold subject to existing oil exploration leases expiring in 1956 and 1958. Because of

285 Flagler’s agreement with the state called for the conveyance of 3,700 acres of state-owned land for every mile of track laid.
problems with previous surveys and the fact that as much as 50,000 acres actually lay under salt water, the company believed that only some 135,000 to 140,000 of the acres conveyed were surface land to which it had unimpeachable title. MLC Vice President Carl W. Hawkins predicted that other land owners would be upset by the “very nominal figure” the company had agreed to accept. The firm had compromised, he wrote, because it believed “the final development of the Everglades National Park will be a tremendous asset to the State of Florida and will . . . perhaps bring many millions of dollars into the State.” NPS acceptance of the MLC holdings subject to existing oil leases made it impossible for it to reject such encumbrances in future purchases.286

Most of the other major land owners were willing to sell at the prices the government offered. None of the fish house proprietors at Flamingo were satisfied with the government’s offers. In addition to the MLC deal, other negotiated sales totaled about 20,000 acres. On May 8, 1950, the government filed a petition in condemnation in the U.S. District Court for the Southern District of Florida. Some 165 owners were involved, including the Palgrove Company, Elizabeth Annat, Paradise Prairie Land Company, Dorothy Dewhurst Parker, and the Simonhoffs, and three owners of 51 acres at Flamingo. Included in this filing were a handful of tracts where owners had agreed to a purchase price, but a court judgment was needed to clear up title problems. On December 4, 1950, Judge John W. Holland approved the government’s declaration of taking. After hearing the arguments of defendants who challenged the government’s map and property descriptions, Judge Holland on May 31, 1951, approved the map and set the stage for jury trials on appropriate compensation for the owners. Because 184 tracts of land totaling about 125,000 acres were involved, the judge split the proceedings into five separate jury trials. The compensation proceedings extended from November 1951 to January 1953.287

The Palgrove Company was awarded $107,231 for its 33,870 acres in late 1951. The Simonoffs settled for $70,000 for their 14,353 acres in Feb. 1952. In May 1952, Paradise Prairie Land Co. was awarded $95,000 plus interest for its 13,500 acres. Dorothy Dewhurst Parker was awarded $36,590 plus interest for her holdings. Both appealed on the basis that surveys had underestimated the acreage they owned, but the appeals were denied.288


287 A. B. Manly, “Acquisition of Lands for Everglades National Park,” Feb. 29, 1956; “Government Goes to Court to Get Glades Park Land,” Miami Herald, May 10, 1950. In some of the cases, a jury was required to physically inspect the properties under consideration. On one trip, a boat with jury members on board lost its way on a foggy evening. Rangers with walkie-talkies finally guided the vessel into Coot Bay about 1:30 in the morning. Judge Holland quipped that hung juries were no novelty but this was the first time he had lost one.

The Last Days of Flamingo

By the late 1940s, commercial fishing was the chief economic activity in the village of Flamingo and on a smaller scale, at Snake Bight and Lostmans River. During World War II, an estimated one to one-and-one-half million pounds of fish annually went by truck via Ingraham Highway from Flamingo to Miami. NPS officials recognized that the fate of these communities, particularly Flamingo, posed issues of equity and public relations. Only four of the fishermen at Flamingo—Lloyd House, Mitchell House, Coleman Irwin, and Loren Roberts—owned property. The remaining residents there and at Lostmans River either rented or occupied the land as squatters. Loren Roberts, Lloyd House, and Coleman Irwin operated fish houses. In many cases, the fishermen who worked for them lived in houses for which they paid little or no rent. Superintendent Beard likened the situation to tenant farming, because many of the fishermen remained perpetually in debt to the fish house owners for nets, gasoline, and other necessary supplies. In April 1948, Albert Manly counted 34 houses at Flamingo along with a number of docks and small outbuildings (figure 6-1, fishing village of Flamingo). A September 1948 hurricane with a 6- to 8-foot storm surge washed 18 houses off their stilts, but most were quickly set up again.

Almost from the beginning, the NPS believed that the hamlet of Flamingo and its residents needed to be removed. Five years before the park was established, a Service wildlife specialist wrote:

We believe that there will be no real conservation program until certain undesirables living in the village of Flamingo and at fishing camps along the west coast are removed. People in these “pest holes” are living off the country, taking alligators, crocodiles, waterfowl, wading birds, and fur-bearing animals. . . . Local people at times deliberately set fire to the glades causing considerable damage.

For a short time, however, Superintendent Beard and others believed that the NPS promise to allow commercial fishing to continue in park waters might force them to allow at least the resident owners to remain, perhaps under special use permits. (See chapter 13 for the evolution of NPS policy on commercial fishing.) Further contacts with the Flamingo residents and a growing realization that the fish houses could shift operations to sites outside the park changed attitudes. Additionally, the House and Roberts families saw an opportunity in the park’s establishment and in the winter of 1948/1949 began selling beer and sandwiches and renting rooms to sportfishermen at


290 James O. Stevenson, NPS Wildlife Section, to Ben Thompson, Asst. to Dir., July 26, 1942, NARA II, RG 79, NPS CCF, box 920.
Flamingo. This sort of “wildcat” concession operation went deeply against the NPS grain and reduced the willingness to allow anyone to remain at Flamingo. By March 1949, the NPS had reached a firm decision that the village of Flamingo would be removed.291

After accepting the government’s declaration of taking, Judge Holland ordered the Flamingo residents to leave by February 4, 1951. Coleman Irwin, whose parents settled at Flamingo before 1900, believed he was not getting proper compensation for his property. He wrote Senator Holland, “the people there [at Flamingo] are reconciled to having to give up their homes, but why cannot the U.S. government be fair and give the people a decent amount for their property?” Irwin and others filed appeals, and the judge extended the deadline to June 1, 1951. The House family moved its House Fishing Company to a Gulf Coast location near Marco. One owner and a number of nonowners stayed on, hoping for some kind of last-minute reprieve. Before and after the June 1 deadline, Flamingo residents asked NPS authorities and politicians that they be allowed to stay.292 They also sent an unsigned letter to Superintendent Beard:

Everglades National Park Service –

We the fishermen of Flamingo have no place to go or any place to stay. Our fish haulers have refused to bring us any groceries – gas or any other supplies. We have no other way of making a living.

We the fishermen of Flamingo will be up with our families at the office of the Everglades National Park office [sic] at 10-o’clock Saturday – June 2, 1951 for information as to where we are to go and what to do and how to take care of our families.

We feel that if the Park Service is taking our homes and our way of making a living, we think they should give us our places here to stay as this is the only place we know how to make a living.293

Nothing found in NPS records indicates whether this meeting took place or what might have been said. After June 1, rangers pressured the remaining residents to leave, and Superintendent Beard reported all were gone by the end of the month, leaving “dilapidated shacks, filth, and rusting iron.” (figure 6-2 abandoned automobile at Flamingo) He noted that three residents tore down the park’s gate and sign as “a last act of defiance.” The men were called before the U.S. attorney in Miami, lectured, and let go. Loren Roberts’s wife Effie later recounted that her husband had wanted to shoot it out with the NPS, but she dissuaded him. The Roberts family maintained that the NPS burned their Flamingo buildings in the dead of night. Others recollect that Flamingo residents burned many buildings themselves out of anger at being ejected. In January 1951, the regional office had approved Superintendent Beard’s proposal to eliminate “by burning if necessary” all structures at Flamingo not useful to the Service. Beard opted to retain two Flamingo houses. The Coleman Irwin House served as the Flamingo ranger station in the 1950s and was razed following Hurricane Donna in 1960. Another house that had been used as “an interpretive display” was burned by rangers in October 1957.294

As for the other, smaller commercial fishing communities, by July 1950, the E. C. Knight Fish Company had moved from Snake Bight to Tavernier in the keys. None of the fishermen who lived in houses or houseboats near the mouth of Lostmans River owned any property there. The NPS considered them squatters and they seem to have been evicted without much trouble or attention from the press.295

295 In June 1949, Superintendent Beard listed ten residents at Lostmans River: Eugene Hamilton Sr., age 60; Eugene Hamilton Jr., age 25; F. E. Williams, age about 60; Roy Priest, age 25; Henry Hamilton, age 42; Louis McBean, age unknown; James Addison, age unknown; Leon Hamilton, age about 60; Walter Hamilton, age 71 (possibly no longer a resident). Supt. Beard to RDR1, June 15, 1948, NARA Ph, RG 79, 79-58-A-360, box 8; SMR, July 1950.
The Flamingo property owners were ultimately paid by the government for their tangible losses. The NPS believed that the fish house owners were exaggerating the profits that they made. Government lawyers therefore obtained copies of tax returns from the Internal Revenue Service to learn what income the fish house owners were reporting. The forcible eviction of the Flamingo community left bitter feelings that remained for decades (see chapter 19).

**Dr. Edwin Lunsford**

An enterprising Miami dentist, Dr. Edwin Lunsford, hoped to build a luxury resort at Cape Sable, to be served by a road and other infrastructure supplied by the NPS. Dr. Lunsford purchased 1,200 acres, including about 8 miles of beachfront, at Cape Sable in 1945 and 1947 for a total of $61,600. The major section of beachfront was at Middle Cape. The second purchase came after Governor Caldwell had appointed Lunsford to the Everglades National Park Commission (ENPC) (see chapter 4). Lunsford built a small frame house and an airstrip on his property so he could fly to and from Miami in his private plane (figure 6-3, Dr. Lunsford’s house at Cape Sable). As a member of the ENPC, Dr. Lunsford met several times with NPS officials from region one and the Washington office on various park matters. He was convinced that they had given him verbal assurances that he would be allowed to develop a major resort on some or all of the land that he had purchased. When Lunsford revealed his plans to Superintendent Beard and Land Acquisition Manager Manly they included “hotels, a bar, swimming pools, yacht basins, tennis courts, shuffleboard, and perhaps a golf course.” As early as October 1945, John Baker of the National Audubon Society declared Lunsford’s resort a poor idea. He was particularly concerned over the potential impact on sea turtles that nested on the beach.296

It is impossible to determine what NPS officials said to Dr. Lunsford before the park was established. Given long-standing NPS policy on in-holdings, it seems highly unlikely that they gave any promise that he would be allowed to develop a private

resort deep inside the park. More probably, Lunsford interpreted vague statements as promises, hearing what he wanted to hear. By September 1949, the NPS had decided it would purchase the doctor's land. He was invited to later bid on any concession opportunity that the Service advertised. Dr. Lunsford was bitterly disappointed and wrote that he felt "rather stupid and betrayed." He tried to get Florida politicians to go to bat for him but was unsuccessful. Lunsford refused all government offers for his property, claiming it was worth $600,000. The case was ultimately decided by a jury, which awarded him $110,000 in January 1952.297

Everglades Hermits

Just a handful of residents were allowed to continue to reside within the new park, including two who became known as Everglades "hermits." Ed Braddock of Miami was not a hermit, but was granted a special use permit to continue to use the Watson Place at Chatham Bend, where he stayed from time to time on fishing trips. His last permit expired in September 1956. Park managers continued to allow Braddock to use the place until the winter of 1959/1960, when they learned that he was allowing friends to use the house on weekends. At that point, the superintendent barred Braddock from using the house. In September 1960 Hurricane Donna virtually destroyed the Watson Place, and the NPS apparently hauled away the debris.298

Arthur Leslie Darwin had been a trapper on Lostmans River from about 1935 to 1942, residing in the old Gene Hamilton Place. During the Second World War he worked as a carpenter in Everglades City. In 1945, Darwin moved to Possum Key where he built a house of concrete blocks and mortar he made himself from sand and shells and purchased cement. The NPS acquired Possum Key when it purchased the Patton Tract in August 1951 (see discussion below). The Service made some attempts to persuade Darwin to vacate, but opted to let him stay, fearing adverse publicity. Darwin raised bananas, guavas, limes, and coconuts and traveled monthly to Chokoloskee to purchase supplies. The NPS got Darwin to sign a quitclaim deed in 1956, confirming that he had no ownership interest. Darwin left Possum Key for a houseboat in Everglades City in late 1972, because of advanced age and the loss of his banana

and guava plants; he claimed to be 95 at that time. According to his son, Luke, Arthur Leslie Darwin died in 1977.299

A second Everglades hermit, Roy Ozmer, said that he sought an isolated spot to live because he was unable to resist overindulgence in alcohol. In 1949, the trustees of Florida’s Internal Improvement Fund granted Ozmer a ten-year lease at $30 a year for Pelican Key. When Pelican Key was transferred to NPS ownership, Ozmer was allowed to remain under a special use permit. Although known as a hermit, Ozmer welcomed visitors. Most of the cast of the film Winds Across the Everglades visited him in 1954, after which he posted a sign on his property reading “Gypsy Rose Lee Slept Here.” When Hurricane Donna destroyed his house in September 1960, Ozmer moved briefly to Erwin, Florida. He soon returned and built a house on Panther Key. When he became ill, he moved again to Erwin, where he died in 1969.300

**Park Expansion in the 1950s**

Although the Park Service had accepted a compromise in 1944 that set a park boundary embracing about 1.2 million acres, it still hoped for a larger park. In particular, the Service was interested in extending the Gulf Coast boundary, which in the 1944 agreement had been set just north of Lostmans River. The Service was especially eager to include the major rookery at Duck Rock near Pavilion Key and the impressive Native American mounds along Turner River in the park. On the park’s eastern edge, the NPS had reluctantly agreed to exclude land with agricultural potential near Royal Palm Hammock and now wished for some or all of this to come into the park. The agricultural acreage southwest of the hammock came to be known as the Hole-in-the-Donut because it was almost completely surrounded by NPS-owned park land. Finally, the Service by this time had realized that an area of about 100 square miles south of the Tamiami Trail and west of Krome Avenue that was outside both the 1944 compromise line and the 1934 maximum boundary contained much of the headwaters of Shark Slough. Development in this area had the potential to seriously disrupt surface water flow into the park.

On the Gulf Coast, major land owner Barron Collier (1873-1939) had been opposed to including much if any of his land holdings in the Everglades National Park. Following World War II, Collins’s sons, Miles, Sam, and Barron Jr., took a different

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attitude. They believed that the future of Everglades City, which their father had developed, was tied to that of Everglades National Park. To help ensure that Everglades City would become the “western gateway” to the park, the Collier Corporation expressed a willingness to donate some 30 to 35 thousand acres to the NPS. About two-thirds of this land lay outside of the 1934 maximum boundary (which stopped at Turner River) and would require additional federal legislation to be included in the park. The prospect of the Collier donation and the general NPS goal of enlarging the park led to extended discussions in the 1950s among NPS officials, Florida’s congressional delegation, and the Florida cabinet to reach a consensus on a new park boundary.

In June 1951, Superintendent Beard sent a letter to Governor Fuller Warren and the other four trustees of the IIF with a map showing approximately 400,000 acres that the NPS wanted to add to the park. The trustees then passed a resolution on June 21, 1951, agreeing to convey all state-owned lands within the expansion areas to the federal government. Many private land owners within the expansion areas and some hunters were strongly opposed to this expansion. The Colliers’ request that Chokoloskee Island be excluded was quickly agreed to by the NPS. The Service understood that trying to remove the estimated 200 residents of the island would be a political headache. Monroe County officials believed that they had surrendered quite enough land to the park and agitated against any expansion. Governor Daniel McCarty, who succeeded Fuller Warren in January 1953, vetoed an act that Monroe County interests pushed through the legislature which would have barred the state from granting any more of its Monroe County land for the park. Through donations in 1951 and 1952, the Collier Corporation conveyed 32,000 acres in trust to the state to be turned over to the federal government for inclusion in the park. In the summer of 1951, an owner of 29,873 acres along the Gulf Coast that were outside the 1950 boundary but within the 1934 maximum boundary offered the tract to the NPS at a reasonable price. With the approval of state authorities, the NPS bought this tract of 29,873 acres, known as the Patton tract, for $96,931.25. After purchasing the private holdings contained within the 1950 boundary and the Patton tract, the Service had approximately $325,000 remaining. To formally recognize all of these new developments, the NPS began drawing up a secretarial order to expand the park boundary.301

Governor McCarty died in September 1953, and Charley Johns took over the office until a special election could be held in 1954.302 Johns opposed further expansion of the park and wanted to retrieve oil rights on land the state had already conveyed to

302 The Florida constitution provided that the president of the state senate become acting governor upon the death, resignation, or incapacitation of the governor.
the NPS. In this environment and without consulting the NPS, the trustees of the IIF on January 19, 1954, rescinded their previous resolution of June 12, 1951, promising to convey additional state lands to the NPS. This followed their action in November 1953 granting a lease for mangrove harvesting on state land within the authorized park boundary. Unhappy with this turn of events, Senator Holland stepped up his involvement in the federal/state negotiations. Secretary of the Interior Douglas McKay went ahead and on March 12, 1954, issued an order adding 271,000 acres to the park (figure 6-4, 1950s boundary change). This acreage was in the northwest portion, including some of the Ten Thousand Islands, and brought the park to approximately 1,499,500 acres. The addition included 10,000 acres of the 32,000-acre Collier donation and the Patton tract.303

From 1954 through 1957, discussions continued on boundary issues among the NPS, state officials, and the Florida congressional delegation, chiefly Senator Holland. In May 1954, LeRoy Collins defeated Charley Johns in the Democratic gubernatorial primary; Collins assumed office in January 1955. Collins was much more receptive to the park’s expansion, but the remaining four trustees of the IIF continued to balk at ceding more state land. The state was in a position to drive a hard bargain, given that the NPS relied on it to convey important lands, including the Collier donation, for completion of the park. Some issues were resolved at a January 1956 meeting in Washington among Florida Attorney General Richard Erwin, Fred C. Elliott, secretary and engineer to the board of the IIF, Director Wirth, Superintendent Beard, Senator Holland, and Congressman Dante Fascell. Senator Holland supported Dade County interests that wanted to keep the Hole-in-the-Donut out of the park as long as it was used for agriculture, and the NPS acquiesced. The Florida cabinet was mainly interested in minimizing the amount of state land conveyed for the park. In mid-1956, the issue of overnight lodging at Flamingo entered into the picture. As described in chapter 7, Director Wirth had decided against a lodge at Flamingo. Wirth tried hard to keep the boundary issue and the lodge issue separate, but ultimately that proved impossible.304

A grand bargain was concluded in February 1957 at a Tallahassee meeting that included Director Wirth, Senator Holland, Governor Collins, Florida Secretary of State Gray, Florida Attorney General Erwin, Comptroller Green and Fred C. Elliott. The terms of the bargain on a new boundary were as follows:

Figure 6-4 1950s Boundary Changes
1. Inclusion of the Hole-in-the-Donut within the authorized boundary, with the stipulation that the NPS could never condemn properties as long as they were being used for agriculture.

2. A compromise on the northwest boundary that conveyed all of the Collier lands to the NPS, but reconveyed a portion of the Patton tract to the state. This acreage subsequently became part of the Big Cypress National Preserve.

3. Reconveyance of Section 36, Range 57 in the East Everglades to the state.

4. A reduction in width from 3 miles to 2 miles of the strip of submerged lands along the Gulf Coast to be included in the park.

5. State agreement to convey lands within the new boundary to the NPS.

Governor Collins was strongly in favor of this compromise; the other four trustees were not. Therefore, the board refused to endorse the bargain but agreed only to execute the land exchange if legislation embodying the deal passed the Congress. Writing to Director Wirth after the February meeting, Governor Collins included a postscript expressing his pleasure that Wirth had agreed to the construction of a lodge at Flamingo. Although no one ever admitted it, clearly NPS agreement to build the lodge was part of the bargain.

The terms of the bargain were embodied in Senate Resolution 1790, introduced by Senator Holland. Representatives Fasce and Paul Rogers introduced identical bills in the House. The new boundary in the bill also included small parcels on Key Largo and in Everglades City for NPS facilities. Finally, the legislation authorized the appropriation of $2 million for land acquisition. This represented the first commitment of federal funds for Everglades land purchases. On July 2, 1958, the legislation was signed into law as P.L. 85-482 (72 Stat. 280) (see appendix A). Included within the new boundary were 1,337,000 acres (2,089 square miles). On February 25, 1959, an exchange of deeds that fulfilled the bargain took place in Tallahassee. The NPS conveyed 51,000 acres to the state, while the state turned over 100,741 acres to the NPS.

**Key Largo**

In 1954, the NPS purchased an approximately 14-acre site on Key Largo near mile marker 98 on U.S. 1 to serve as a ranger station and base for boating operations.
on Florida Bay. The property contained a side-gabled frame house. In 1994, the NPS acquired an adjacent property of 3.7 acres that contained the Reef Comber Motel and various outbuildings. The development of these properties for park use is covered below in chapter 7.307

**Acquiring the Hole-in-the-Donut**

In the 1950s and 1960s, a new technique known as rock plowing made agriculture in the Hole-in-the-Donut considerably more feasible. Rock plowing involved attaching a scarifying plow blade to the front of a large bulldozer (figure 6-5, bulldozer with scarifying blade for rock plowing, 1955). The plow broke up about 6 to 8 inches of the limestone substrate and mixed it with the thin layer of soil above it. The added soil depth achieved through rock plowing made the growing of winter vegetables possible on land where the soil layer had previously been too thin. With the use of rock plows, the acreage being farmed in the Hole-in-the-Donut rose from about 1,000 in 1947 to about 7,500 in 1970. The expanded scope for growing vegetables caused land values to rise. One of the larger operations in the Hole-in-the-Donut was Iori Farms, owned

![Bulldozer with scarifying blade, 1955](image)

by the Iori brothers, who purchased 4,400 acres that they began to rock plow in 1955. The Ioris built a concrete block quarters structure for its field laborers, a separate bath house, and a warehouse building with two open-sided wings for tractor and truck parking. The Ioris defaulted on their mortgage and the property was taken over by the Farmers Home Administration. The NPS was able to add the 4,400 Iori acres to the park, through a 1964 Act of Congress that authorized a payment of $452,000 to the Farmers Home Administration (figure 6-6, Iori Farms).308 As described below in chapter 22, the U.S. Army used 700 acres of the former Iori property as a Nike missile base from 1965 to 1979 under a special use permit.

Figure 6-6. Iori Farms complex

Two parcels within the Hole-in-the-Donut had nonagricultural uses. In 1956, during the administration of Governor LeRoy Collins, the trustees of the IIF conveyed a tract of 230.34 acres to the South Florida Council of the Boy Scouts of America,

to use as a scout camp. This acreage retains that use at this writing. In 1961, a firm called Dreamland Estates, Inc., purchased 840 acres in the Hole-in-the-Donut fronting on Ingraham Highway and began selling lots. The 1-1/4-acre lots started at $795, with $10 down and financing at 6 percent. The lots were marketed to African American residents of the Miami area, most of whom probably did not know that they were buying marsh land that was typically under water in the rainy season (figure 6-7, Dreamland Estates advertisement). NPS officials were particularly troubled by this prospect of multiple owners of small tracts within the area they hoped to acquire.

The $2 million authorized in the 1958 act proved not nearly adequate to purchase the private lands in the northwest extension (about 50,000 acres as of July 1969) and the 22,000 acres in the Hole-in-the-Donut. To provide more funding and allow for condemnation of agricultural land, if necessary, the Florida congressional delegation engineered the passage of Public Law 91-428 in 1970 (see appendix A). By this point, NPS officials were convinced that the use of pesticides and herbicides in the Hole-in-the-Donut was harming park wildlife and environments. The new legislation authorized an additional $20,000,000 for land acquisition, and Congress appropriated $10 million in fiscal year 1973. By January 1, 1974, the NPS had purchased all but 44 acres in the Hole-in-the-Donut. All of the agricultural land was purchased through negotiations; condemnation was necessary only for some smaller parcels, including a number of the lots in the Dreamland Estates subdivision. Among the larger parcels were the Weisenberg tract, 5,300 acres purchased for $2.4 million, the Rothenberg tract, 800 acres bought for $320,000, and the Marlin tract, 525 acres bought for $210,000. The government permitted some of the sellers to continue leasing their lands for agricultural production through June 1975. At that point, the NPS expected to start restoring the lands in the Hole-in-the-Donut.

309 IIF Deed No. 21134, Feb. 10, 1956. Since the mid-1990s, the South Florida Collections Management Center has had among its holdings a plaque commemorating the donation of the land for the Boy Scout camp. The plaque reads in part: “Camp Everglades/Deeded in 1957 to the South Florida Council of the Boy Scouts of America by members of the Rotary Club of Miami/Acquired by W. Cecil Watson.” Several attempts to get information from the Rotary Club of Miami proved unsuccessful, so the role of the club in securing the conveyance from the state remains a mystery.

new appropriations also allowed the Service to complete acquisition in the northwest extension (figure 6-8, Hole-in-the-Donut lands).³¹¹

As the June 1975 deadline approached, the parties farming in the Hole-in-the-Donut began to demand an extension. These were individuals and firms that were allowed to continue their leases for a few years after the land owners had sold out to the government. The South Florida Tomato and Vegetable Growers, Inc., led the effort to keep farming going, arguing that the 1970 law had somehow been “railroaded” through Congress. Further, the organization claimed that farming in the Hole-in-the-Donut added $25 million to the local economy and provided seasonal employment for 3,000 migrant workers. The growers persuaded the Florida Cabinet to petition

the Department of the Interior for an extension of farming. They also retained Eco-Impact, Inc., to study the ecological impact of farming and make recommendations. The resulting 284-page report concluded that farming in the Hole-in-the-Donut had “minimal” effect on wildlife. The cover of the report featured a highly imaginative scene of a black tomato picker with a stream and deer in the background (figure 6-9, *The Impact of Evicting Farmers from the Hole-in-the-Donut*). Miami Herald columnist John Pennekamp commented, “I never have encountered a similar scene anywhere in the

![Figure 6-9. Cover of The Impact of Evicting Farmers from the Hole-in-the-Donut](image)
Everglades.” Everglades National Park managers believed the report from EcoImpact was full of errors and held to its position that agriculture in the Hole-in-the-Donut was incompatible with the park’s purposes. A group called Organized Migrants in Community Action (OMICRA) led 150 protesters in a demonstration along the main park road near the main visitor center (Figure 6-10, protesting to keep farming in the Hole-in-the-Donut). Scattered protests continued near the park entrance and in Homestead through the summer of 1975. The properties were already owned by the NPS, and the protests eventually died away.312

![Figure 6-10. Protesting to keep farms in the Hole-in-the-Donut](image)

### The East Everglades Addition

The 1958 federal law was meant to establish the “final” boundary of Everglades National Park. As park managers gained a clearer understanding of the hydrology of South Florida, they began to realize that this boundary did not contain all the land necessary to protect the park’s water supply and resources. The area known as the East Everglades was of particular concern. Lying between the eastern boundary of

the park as established in 1958 and the east coast perimeter levee, the East Everglades contained a portion of the headwaters of the Shark River Slough, the surface water source for Taylor Slough, and important wildlife habitat. Beginning in the mid-1970s, more and more residential and agricultural development began to occur in the East Everglades. The NPS, the state, and outside groups worked together to pass the Everglades National Park Protection and Expansion Act of 1989. The act’s legislative history and the critical role of Superintendent Mike Finley in getting it passed are presented in chapter 9 below.313

The 1989 act provided for the addition of approximately 107,600 acres to the park; when surveys had been completed, the figure increased to 109,600 acres (figure 6-11, East Everglades lands). The state committed to donating 35,000 acres it owned. The remaining acreage was privately owned, and there were many small tracts that had been sold sight-unseen as residential lots. The act provided that acquisition costs, estimated at 35 to 40 million dollars, would be split 80 percent/20 percent between the federal and state governments. The federal government ended up with about 9,000 tracts as its responsibility. Acquisition was handled by the NPS Land Acquisition Field Office in Naples, Florida, which had been previously established to acquire lands for Big Cypress National Preserve. Appropriations came more slowly than anticipated, driving up the final cost. The first major appropriation of $7.5 million came in fiscal year 1991. Prices for many properties were negotiated, but some 2,700 condemnation actions were necessary. In the early 1990s, park rangers assisted with site inspections and contacting land owners. The park also worked closely with the Naples office in setting priorities for acquisition. On October 1, 1991, the state turned over 35,000 acres owned by it or its agencies, including Chekika State Park (640 acres) and the section and one-half (960 acres) that it had been administering as a wildlife and environmental area. Through fiscal year 2001, $72 million had been expended and less than 8,000 acres remained to be acquired. As of this writing, only a handful of properties remain to be acquired.314

Businesses and Camps in the East Everglades Addition

Four businesses offering airboat tours and the William Osceola camp existed on the south side of the Tamiami Trail in the East Everglades expansion area.

Figure 6-10 East Everglades Lands
One business, Coopertown, was established in 1945, and featured airboat tours and a restaurant. The other three were Everglades Safari Park (airboat tours and a restaurant), Gator Park (wildlife shows and airboat tours), and Frog City (airboat tours). Together it was estimated that the airboat operators served about 300,000 visitors annually. The operators of Frog City sold their property and that business ended. The 1989 act authorized, but did not require, the NPS to extend concession contracts to the remaining three airboat operators. Ideally, the Service would have preferred to buy out the operators and put an end to commercial airboating. It was clear, however, that the congressional sponsors of the act had intended that the operators remain, and there was considerable local support for them. In 2005, the park moved to prepare an environmental assessment for the issuance of short-term concession contracts.

The future of private and commercial airboating in the East Everglades was addressed in the development of the park's general management plan (GMP). The preferred alternative in the draft GMP released for comment in spring 2013 called for the NPS to acquire all existing commercial airboat operations. The NPS would then negotiate concession contracts with four or fewer operators. In negotiating contracts, the NPS would strive to consolidate the number of commercial airboat facilities, limit activities to those appropriate in a national park, ensure that tours met NPS standards for interpretation, and confine airboat operations to designated trails in the park.

A parcel in the East Everglades acquired by the park in 1992 contained a settlement of Native Americans on the Tamiami Trail. The settlement is known as the William McKinley Osceola Camp or simply the Osceola Camp. As of 1992, the camp's occupants were not affiliated with either of the two recognized tribes in Florida. The Osceolas had no legal title to the land, which they had occupied since at least 1963, and likely since shortly after the opening of the Tamiami Trail in 1928. In order to regularize the relationship, the NPS moved to issue a special use permit to the Osceolas. A permit was issued in August 2008, with the understanding that congressional legislation would be sought to allow permanent occupation of the camp. A new five-year permit was issued in summer 2013. Sometime after 2008, most, if not all, of the residents of the Osceola camp affiliated with Miccosukee Tribe of Indians and they no longer desire legislation. The occupants have also raised the areas surrounding the buildings in the camp in anticipation of higher water levels associated with the raising of a section of the Tamiami Trail.


316 Draft GMP, 71.

Florida Power & Light Corridor

Included in the East Everglades expansion area was a corridor 7.4 miles long and 330 feet wide belonging to Florida Power & Light Company (FP&L), totaling 320 acres. FP&L purchased the land in the late 1960s and early 1970s as part of a continuous corridor from its power plant at Turkey Point on Biscayne Bay to substations farther north. The company wanted to be able to build new transmission lines in case it added capacity at Turkey Point in the future, a likely event given South Florida’s rapid population growth. Following the 1989 legislation, the NPS hoped to buy the land in the corridor. The FP&L corridor became a much higher priority as changes under the Modified Water Deliveries project came closer to realization. These changes involve inundating the corridor during a portion of the year. Building transmission lines requires constructing concrete pads for foundations and an access road for line maintenance. These changes would impede surface water flow and potentially impact the nesting areas of wood storks and other birds. The Corps of Engineers, acting on behalf of the NPS, for a number of years attempted to negotiate a purchase of the corridor, offering $109,300 for the parcel in 1996, but the company declined the offer.318

After studies running from 2006 to 2008, the NPS, the Corps, FP&L, and the South Florida Water Management District identified an alternate corridor—a 260-acre strip of NPS-owned land on the eastern edge of the East Everglades expansion area, about three miles east of the strip owned by FP&L. This alternative strip is known as the West Preferred Corridor. Although this corridor is within the park boundary, it was generally believed that locating transmission lines there would have fewer negative impacts on water flow and natural resource values than placing it on the original FP&L corridor (known as the West Secondary Corridor). In July 2008, the NPS and FP&L executed an agreement to do a land exchange in the expansion area, subject to congressional authorization of the exchange. At the same time, FP&L granted an easement over a portion of its corridor that allowed the construction of a bridge elevating a one-mile section of the Tamiami Trail to go forward (see chapter 28). In the Omnibus Public Land Management Act of 2009, Congress authorized but did not require the secretary of the interior to enter into the land exchange. Any such exchange was to be the subject of an environmental analysis prior to action by the secretary. The

NPS considered that the 2009 legislation superseded the 2008 agreement it had made with FP&L.  

As knowledge of the proposed land swap spread, some scientists and several environmental groups raised serious concerns. Building on the West Preferred Corridor would lessen the impact on surface water flow, but concerns remained over the visual impact of a seven-mile string of 140-foot towers and their effects on nesting wading birds. Many inside and outside the NPS were concerned about the precedent that would be set if FP&L were allowed to build a transmission line anywhere within the park’s boundary. In compliance with the provisions of the National Environmental Protection Act, the NPS in May 2011 began to prepare an environmental impact statement to assess the effects of various options, including NPS purchase of the FP&L-owned West Secondary Corridor or a land exchange. At a public meeting in June 2011, the National Parks Conservation Association (NPCA) presented 8,000 letters opposing the land swap. The NPCA and local chapters of the Sierra Club and the National Audubon Society strongly urged the NPS to purchase the West Secondary Corridor, by condemnation if the company declined to sell. NPCA representative Dawn Shirreffs said, “The folks who care about national parks think it’s completely inappropriate to give a utility national park land for a power line corridor.”

As work on the environmental impact statement went forward, in-depth discussions were conducted in 2012 among representatives from the NPS, FP&L, Miami-Dade County, the state, and the NPCA. The NPS commissioned a study from the Louis Berger Group, Inc., to explore additional alternate corridors east of the park boundary. In December 2012, the NPCA announced that the parties had agreed upon such an alternate corridor, which came to be known as the West Consensus Corridor. FP&L subsequently applied to the Florida Department of Environmental Protection for approval to build on any of the three corridors: the West Consensus Corridor, the West Preferred Corridor, and the West Secondary Corridor. The company subsequently dropped the West Secondary Corridor from its application. The final decision lay with Florida’s governor and cabinet, sitting as the Florida Power Plant Siting Board. In January 2014, with FP&L’s application pending, the NPS released


a draft environmental impact statement with several alternatives for public comment. The Service withheld its decision on a preferred alternative until after it had analyzed comments.\textsuperscript{322}

On May 13, 2014, the Florida Power Plant Siting Board certified the West Consensus Corridor as the preferred choice for the transmission line. It also gave approval to FP&L to construct two nuclear-powered generating plants (nos. 6 and 7) at its Turkey Point facility on Biscayne Bay. The board approved the West Preferred Corridor as a back-up in case “an adequate right-of-way within the West Consensus Corridor . . . cannot be secured in a timely manner and at a reasonable cost.” The assumption is that building on the West Consensus Corridor will be less expensive than building on the back-up corridor within the park. Much of the land in the West Consensus Corridor has already been developed and is owned by the South Florida Water Management District (SFWMD) or limestone-mining companies. The SFWMD and the mining companies are eager to keep the transmission line out of the park. The action of the siting board provides hope that the transmission line can be kept out of the park, although uncertainties remain: the new Turkey Point nuclear plants await approval by the Nuclear Regulatory Commission; it is unclear how quickly FP&L can acquire the land along the West Consensus Corridor; and construction of towers on any wetlands within the corridor requires approval from the Corps of Engineers. Assuming that the company is successful with the West Consensus Corridor, it is expected that it will then deed its 320 acres within the park to the NPS. \textsuperscript{323}

**Tarpon Basin**

In 2002, the park became aware that a parcel of about 592 acres on the southern portion of Key Largo might be available for purchase. The parcel consisted mostly of coastal mangrove forest and included 10 acres of hardwood hammock and a 900-foot frontage on U.S. 1. The purchase was attractive to the NPS because most of the hardwood hammock on Key Largo had been lost to development, the parcel would provide an additional point of access to Florida Bay for park staff, and the frontage on U.S. 1 had potential as a visitor contact point. Because the property was outside


of, but adjacent to, the park’s authorized boundary, congressional action was required to expand the boundary and allow the acquisition. Superintendent Maureen Finnerty contacted The Nature Conservancy, which purchased the property for $370,000 in 2003, after being assured that the NPS would seek the required congressional approval. The conservancy agreed to hold the land in the interim. Congress, in the Omnibus Public Land Management Act of 2009 (see appendix A), adjusted the park boundary to include the Tarpon Basin property and authorized the NPS to acquire the tract by donation or through appropriated funds. To allay local concerns, the act gave the Service authority to continue to permit owners of sailing vessels to shelter them in the basin (traditionally used as a “hurricane hole”) during storms. On May 25, 2010, The Nature Conservancy conveyed the property to the NPS by donation.324

Chapter 7: Developing the Park

Many ideas for the development of the park floated around long before the park was established and the NPS began a formal planning process. In the 1930s and 1940s, some Florida proponents of the park foresaw resort hotels, parkway roads, and even golf courses as part of the program. In 1933, Marjory Stoneman Douglas confidently wrote that: “Hotels maintained by the park service will be situated on the loveliest of the outer beaches, along the Keys, or at Cape Sable.” Five years later, G. Orren Palmer, head of the ENPC, pointed to resort-type development to convince Florida citizens of the economic benefits of a park. In a radio talk, he referred to “roads, bridges, canals, five large hotels, tourist camps, fishing camps,” and more that would sprout up not long after a park was established. Development of recreational facilities within the park had long been a goal of many of the Florida businessmen who saw the park mainly as a source of tourist dollars. It was in large part this sort of boosterism, along with the proposal for a shoreline scenic highway persistently touted by the ENPA, that had motivated leading conservationists to press for a wilderness guarantee in the park’s 1934 enabling act. As discussed below in chapter 10, wilderness in the 1930s was a nebulous concept, and the NPS had developed no policies for managing wilderness. In fact, the NPS published a map shortly after 1934 showing the a scenic road traversing the entire shoreline of the park—the same road that Ernest Coe and the ENPA had long supported (figure 7-1, NPS recreational map of Florida). Although this map did not commit the agency to building the road, it suggested NPS support for a continuous road through the mangrove forest along the coast.325

The NPS, however, was careful to remind all concerned that no serious planning for park development could take place prior to establishment. The service also promised that thorough investigations of natural resource values and wildlife needs would take place as part of the park planning process. Because Everglades National Park was conceptualized as above all a wilderness and biological park, the first development program for the park was critical— all future development was likely to remain within the footprint of the original development.326 As the NPS began its planning process in the late 1940s, three key issues emerged. The first was what kind of development to allow along the relatively high ground stretching from Flamingo to Northwest Cape Sable. This was the only sizeable area within the park that lent itself to significant development.

326 Later during the Mission 66 period, the declared policy of the NPS was that wilderness or primitive areas would be preserved largely by directing the bulk of visitors to strictly limited areas within in parks. See Richard W. Sellars, Preserving Nature in the National Parks: A History (New Haven: Yale University Press, 1997), 181.
recreational development; it remained unflooded except during hurricanes and it had the sand beaches and Gulf views that visitors favored. A second question was whether to continue to rely on an improved version of the Ingraham Highway as the main means of automobile access or to cut new roads into the park. A third issue was the appropriate location for park headquarters. NPS managers aimed to limit development to 10 percent or less of the park’s land area. They believed that many areas of the park would always remain accessible by boat only. The principal decision concerning boating was the number and location of marinas within the park where boats might be rented or visitors could launch their own. Finally, the NPS faced considerable pressure from Florida politicians and businesspeople to develop the park quickly, which threatened to shorten the normal planning process. As mentioned above in Chapter 5, premature park development also risked making land acquisition more expensive.

**Preliminary NPS Planning**

Already in 1946, Ray Vinten, Dan Beard, and Regional Director Thomas Allen were informally discussing what sort of park development would be appropriate. The Washington office cautioned Allen to be very circumspect about what was said publicly. Washington advised that the best response to queries from the ENPC and
others would be to point to what had been done in other parks. After the park was established in June 1947, work began on the first version of a park master plan. Secretary of the Interior Julius Krug took a strong interest and pushed for extensive recreational development. A few days after the park dedication in December 1947, Krug met in Miami with John Pennekamp and other ENPC members, the mayor of Miami, newspaper publishers, and Superintendent Beard. The secretary was largely in agreement with local opinion leaders on the need for rapid development. Spurred by the secretary’s interest, the NPS held a meeting in Washington on December 30. Key participants were Associate Director Demaray, Regional Director Allen, and Chief of Development Thomas C. Vint. The group decided to have a preliminary version of a master plan ready to present to the secretary by April 1948. The master plan was to be based on the following assumptions:

1. The main park road would largely follow the route of the Ingraham Highway, but would swing north to avoid going through the Hole-in-the-Donut.

2. Extensive visitor-use development between Middle Cape Sable and East Cape Sable would include lodge and cabin accommodations for 1,000 and camping and picnicking facilities that could handle another 1,000.

3. Coot Bay would be developed as a marina and NPS patrol base.

4. Pine Island would be a temporary location for employee housing, while permanent sites for park headquarters, housing, and maintenance would be studied.

5. Everglades City would be a jumping off point for boat visitors, but no road would be built into the park from there. Initial visitor amenities would be left to private enterprise.

6. A concessioner would be sought to operate houseboats for overnight rental at selected spots.

These ideas were embodied in an early version of the park’s master plan produced in March 1948. The general development plan for the park at this juncture called for overnight lodging and a boat concession at Cape Sable and a second boat concession at Coot Bay. A museum, the main utility area, park administrative offices, and park housing were slated for a location just inside the park boundary, west of Homestead. The plan located ranger stations at Lostmans River, Shark River, East River, and Tavernier in the keys. The master plan drawings for the proposed Cape Sable

327 RDR1 Allen to Daniel Beard, May 13, 1946, NARA Ph, RG 79, 79-58A-360, box 8; Acting Dir. Hilary Tolson to RDR1 Allen, June 6, 1946, NARA II, RG 79, NPS CCF, box 901.
development are strikingly modernist, with asymmetrical massing, flat roofs, curtain walls of glass, and canopies supported by concrete pylons (figure 7-2, proposed Cape Sable development). Superintendent Beard branded the style “Miami Beach Modern.” Beard was prescient in his terminology. Architectural historians have embraced the term Miami Modern to describe the Miami Beach hotels of the late 1940s through the 1960s. Miami Modern has been called a “populist fantasy version of modernism.” The style is similar to International Style modernism in its emphasis on modern materials (concrete, steel, and glass), large flat wall expanses, window walls, and the use of concrete pylons, but is somewhat more playful, especially in the use of color. Miami Modern is most closely associated with works like Morris Lapidus’s 1954 Fountainbleau Hotel, but the trend was well underway in 1948. NPS designers would have been aware of two new Miami Beach hotels—Henry Hohauser’s Sherry Frontenac (1946) and Roy France’s Saxony (1948).329

The concepts from the first master plan circulated within the NPS and were shared with leading conservationists. Not surprisingly, service biologists and some conservationists believed that this was too much development for a wilderness park. NPS Chief Biologist Victor Calahan found 2,000 lodgers and campers at Cape Sable excessive. Devereux Butcher, executive secretary of the National Parks Association, and prominent conservationist Augustus Houghton wrote Interior urging that the development plans be scaled back. Thomas Vint also began to have second thoughts. As described above in chapter 6, the NPS in 1948 had not yet come to a final decision on the future of the fishing village at Flamingo. Once the Service decided in early 1949 that Flamingo had to go, concentrating visitor use facilities at Flamingo, an area that already had been disturbed, became a more appealing option than placing them at the Middle Cape. The pushback from conservationists and biologists was also a major factor leading the NPS to rethink its plans for the park. It is entirely possible that Director Drury showed the preliminary plans to conservationists

in hopes of getting ammunition that he could then use against those who were promoting extensive tourist accommodations in the park. NPS budgets in this period were meager, and development in the park was almost certain to proceed slowly in any event. While waiting for appropriations, NPS officials in the early 1950s continued to refine a master plan.330

Beginning in the winter of 1948/1949, visitors, Florida politicians, and the press began to complain that the new park offered few amenities for visitors. In summer 1949, National Parks Magazine pointed out that the only public latrine in the park was “a disgraceful wreck of a privy perched over a roadside drainage canal” at Coot Bay (figure 7-3, Coot Bay comfort station). The NPS resorted to a number of temporary measures until more permanent development was in place. By the winter of 1949/1950, the bathrooms at the Royal Palm Lodge had been rehabilitated and opened to the public. By the following winter, a concessioner, National Park Concessions, Inc., was operating a snack bar and gas station at Coot Bay. Ranger stations were established at Coot Bay and in the Royal Palm Lodge. On the Gulf Coast, a houseboat was used as temporary ranger station until January 1950, when a patrol cabin was completed on Lostmans River. By April 1952, the old Coleman Irwin house at Flamingo and a former restaurant and service station (purchased from John and Julia Szady) at 40-mile bend on the Tamiami Trail were in use as ranger stations.331

The first permanent visitor use structure at the park was an interpretive center/ranger station at Royal Palm Hammock (Paradise Key). In part because NPS managers thought it best that “Paradise Key be permitted to return to the primitive with


practically all evidence of former human occupation removed,” no consideration was
given to retaining and reusing the Royal Palm Lodge and its outbuildings. Management
saw the lodge as dilapidated, costly to maintain, and not well located. The NPS had
chosen Royal Palm Hammock as a prime wildlife viewing area and had two nature
trails laid out by 1949/1950 (see chapter 20). In April 1951, it began construction on
a new interpretive center and ranger station about 1,500 feet east of the lodge.332 The
new facility was ready for use by the winter season. An unornamented structure of
poured concrete, the interpretive center was notable as an early example of the NPS's
commitment to modernist architecture, coming four years before the advent of the
Mission 66 program (figure 7-4, Royal Palm ranger station at completion).333

As constructed, the Royal Palm interpretive center had two buildings—the exhibit
space/ranger office and a comfort station—connected by a continuous flat roof that
extended out to form a canopy supported by concrete pylons. The exhibit building rose
about three feet above the level of this primary roof and had clerestory ribbon windows on all four sides. As one of the NPS's first
modernist structures in the postwar period, the Royal Palm facility drew criticism.
Devereux Butcher's 1952 article in National Parks Magazine deploring the trend toward
contemporary architecture in national parks called it an “incongruity.” A travel writer
for the Chicago Tribune noted that the center looked “somewhat out of place in its jung
gle setting.” The architectural style used for the Royal Palm building shows that Mis
sion 66 in large part merely reaffirmed what had been NPS practice for several years.334

332 The new facility was on the route of Ingraham Highway, so that it would be immediately ac
cessible to visitors. When the new main road was finished, a dead-end spur road to the facility was to
be built, and that portion of Ingraham Highway then made into a foot trail.
23, 1948, NARA II, RG 79, NPS CCF, box 910; Supr. Beard to RDR1, Mar. 17, 1949, EVER 22965,
334 Devereux Butcher, “For a Return to Harmony in Park Architecture,” National Parks Maga
zine 26/111 (Oct.-Dec. 1952); “Paradise Key Offers Look at Wilderness,” Chicago Tribune, Apr. 21,
1957. The Paradise Key facility cost $74,802, including site preparation and utilities; the contractor
was J. E. Shaw. Form 10-768, EVER 22965.
As the NPS inaugurated the Royal Palm building, it continued to fine-tune a master plan. Chief of Design Vint made visits to the Everglades in March 1949 and again in March 1952. Frederick Law Olmsted Jr. and William Lyman Phillips visited in late spring 1950. Olmsted told Ray Vinten and NPS Director Drury that he believed Coot Bay a poor site for visitor services. He thought the main park road should cross Long Pine Key before returning to the route of the Ingraham Highway. Further, he advised running the road within sight of Snake Bight, through Flamingo and past Northwest Cape Sable to a visitor contact point and marina for tour boats on Oyster Bay. By April 1953, the NPS had confirmed the decision to concentrate visitor services at Flamingo, including marina services that had once been slated to remain at Coot Bay. Both Beard and Vint wanted park headquarters to be on U.S. 1, well to the east of the park’s authorized boundary, where it could attract travelers driving from Miami to the keys. Most everyone else wanted headquarters just inside the park’s east boundary, on a piece of high ground that Beard had named Parachute Key (figure 7-5, Parachute Key and Pine Island). Tom Vint was again in the park in March 1954, when the final decision to place headquarters on Parachute Key was made. By then, four quarters units and a shop building had been constructed at Pine Island, not far from Parachute Key.335

Main Park Road

A sharp difference of opinion emerged between Vint and Beard on the location of the main park road. Beard adhered to longstanding NPS ideas that motorists should have both easy access to important natural features and pleasing vistas from their autos. He found Ingraham Highway visually uninspiring, deploring its straight lines and sharp turns. Instead, Beard wanted to cut a new, gently curving road that would skirt the northern edge of Long Pine Key and give access to several features, including Mahogany Hammock and a platform offering a view over Shark Slough.336 After briefly rejoining the north-south segment of Ingraham Highway at Sweet Bay Pond, the new road would describe gentle curves just to the east of the old highway and terminate at Flamingo. Vint, who had overseen the construction of many famous and carefully sited roads in the western parks, disagreed. He argued that retaining the Ingraham

335 C. Ray Vinten to RDR1, Apr. 15, 1950, EVER 22965; SMR, Mar. 1954. Beard later wrote that he named it Parachute Key with the thought that if all the other suggestions for a headquarters location (including his preferred spot on U.S. 1) “were shot down in flames,” the NPS could parachute into a fallback location—the key located just inside the park’s eastern boundary, which was the site ultimately chosen. Daniel Beard to Editor, ENHA, Mar. 28, 1969, EVER 22965.

336 Some 30 years later, C. Ray Vinten said that he had suggested to Beard the idea of routing the park road so as bring visitors to “different stations along the road [to interpret] that great river of grass.” C Ray Vinten, interview by Boyd Evison, Apr. 6, 1971, St. Augustine Historical Society.
Highway would be cheaper and less damaging to natural values than building a new road.\textsuperscript{337}

Vint in September 1954 persuaded Director Wirth to scrap the plan for a new park road and go back to the idea of improving the Ingraham Highway. This move came in spite of the fact that the Bureau of Public Roads had made surveys of the new route across Long Pine Key the previous winter. Superintendent Beard and Edward S. Zimmer, chief of the newly established NPS Eastern Office of Design and Construction,\textsuperscript{338} vociferously objected to this change. In March 1955, the Director abandoned the idea of keeping Ingraham Highway. Ultimately, a hybrid plan was adopted, with a


\textsuperscript{338} The Eastern Office of Design and Construction and its counterpart, the Western Office of Design and Construction were set up in 1954. Architects, landscape architects, and engineers that formerly had worked in the regional offices were pulled into the new units. Landscape architect Edward Zimmer was chosen to head up the EODC in Philadelphia. Thomas Vint remained in the Washington office as chief of design and construction. Ethan Carr, \textit{Mission 66: Modernism and the National Park Dilemma} (Amherst: University of Massachusetts Press, 2007), 63-64.
wholly new alignment around Long Pine Key but a return to the route of Ingraham Highway from Sweet Bay Pond to the vicinity of Coot Bay. The NPS paved the portions of the old highway incorporated into the new road, made the curve at Nine Mile Pond more gentle, and rerouted most of the road from near Coot Bay to Flamingo. The main park road was constructed in ten separate projects, beginning in May 1955, and was opened to the public in March 1957. Grading, seeding, and signage were completed in the summer of 1958. Traditionally, roads in the Everglades had been built with fill dredged from alongside the road, creating canals. These canals both disrupted the water regime and were dangerous for drivers. For the main road in Everglades National Park, engineers got fill from nine borrow pits within the park. The pits were excavated to a depth of 15 to 20 feet at sites out of view of the road. To make them seem more natural, the pits were made with jagged rather than smooth edges. They also were kept shallow near their banks to encourage the growth of native vegetation. To help preserve surface water flow, a bridge was built to carry the main road over Taylor Slough and culverts were placed at intervals along the road.339

Over time, the NPS converted portions of the Ingraham Highway to maintenance roads or trails and obliterated other sections. One section of about .75 mile near the main park entrance was removed in 1951 when the Service built an access road to the Pine Island residential and maintenance area. Planners incorporated approximately 1,360 feet of the highway into the Anhinga Trail (see chapter 20). When the main park road was under construction in the mid-1950s, the NPS removed a 3.4-mile section of the highway and the adjacent Homestead Canal running east from Sweet Bay Pond to limit access to the backcountry by poachers. Most of the rest of the old highway running east and northeast to Royal Palm remains and is now the Old Ingraham Highway Trail, with two backcountry campsites (Ernest Coe and Old Ingraham). In 1993, the SFWMD removed 700 feet of the old highway in Taylor Slough to improve surface water flow. The Corps of Engineers completed this job in 1998 by removing another 2,190 feet.340

Early on, park planners recognized the need to provide dead-end roads and short trails from the main park road to allow visitors to experience Everglades environments in comfort. The Service built parking lots and trails, with elevated boardwalks as needed, at:
• Pinelands, to interpret the Atlantic coastal ridge and pine uplands, 1958
• Pa-Hay-Okee (Joree Hammock), with an elevated overlook to interpret sawgrass marsh, 1959
• Mahogany Hammock, to interpret hardwood hammocks, 1959
• West Lake, interpretive exhibits, a comfort station and a trail through mangrove forests, 1965

By 1963, the NPS deemed the park road system “essentially complete.” The total cost of constructing the main park road and the parking areas at Pinelands, Pa-Hay-Okee, and Mahogany Hammock was $3,722,369 (figure 7-6, park developed areas).341

Campgrounds

NPS planners had not anticipated that many visitors would want to camp in the park, but a strong demand for campgrounds developed. Early planning had contemplated only a small campground as part of the Flamingo development. The park allowed primitive camping on Parachute Key and Royal Palm Hammock in the 1950s until the Flamingo campground opened in 1958. Continued strong interest in camping resulted in the expansion of the Flamingo facility and the development of a second campground on Long Pine Key as detailed below.342 The park’s development of backcountry campsites is covered in chapter 10.

Flamingo Development

By April 1953, the decision to concentrate visitor services at Flamingo had been reaffirmed. Superintendent Beard was already thinking in terms of a “multipurpose public services building” as well as a restaurant, marina, campground, and picnicking area. The functions concentrated here were similar to those at first planned for Cape Sable in 1948. The NPS would soon adopt the term “visitor center” for a multipurpose public services building. As indicated above, the campground was added to the program based on visitor demand. Beard had never been keen on having a lodge or cabins at Flamingo. Conservation groups pressured NPS Director Conrad Wirth, who took over from Newton Drury in December 1951, to eliminate overnight accommodations from the master plan. As described below, political pressure from the state of Florida

Figure 7-6 Park Developed Areas
ultimately compelled the NPS to build a lodge. By 1954 or 1955, the NPS had decided to include NPS employee housing and a secondary maintenance area at Flamingo.343

NPS architect Cecil Doty was detailed to Everglades National Park for the months of April and May 1954 to assist in “working up architectural studies” for the Flamingo development. Doty, who had thoroughly embraced modernism, favored designs with “flat roofs, stark geometric massing, and contemporary materials.” In July, Doty produced seven pages of drawings for a complex at Flamingo. The centerpiece was a long, horizontally oriented public services building fronting on Florida Bay (figure 7-7, Cecil Doty drawing of Flamingo VC). All major functions except storage were located on the second floor, which was raised on concrete pylons, to keep the operations above the effects of hurricane storm surge. The NPS wing on the east was to have a small museum, offices, and restrooms. The concessioner’s wing was to include a gift shop, coffee shop, and full-service-restaurant. The raised main floor was reached by ramps, and the two sections were connected by a screened lounge. Doty’s drawings also included a separate lodge to the west, a service station, and a comfort station design, to be repeated as needed for picnic and campground areas. In a birds-eye view of the whole development, the architect drew in a marina area, but did not provide drawings or plans for any of its constituent buildings (figure 7-8, Cecil Doty birds-eye view or proposed Flamingo development).344 Doty’s preliminary studies served as a template for a request for proposals that the NPS released to prospective concessioners in October 1954. The Service was looking to grant a 20-year concession to a firm that

344 Carr, 140-141; Drawing NP-EVE-1006.
would commit to a construction program of at least $500,000 (2014 equivalent of $4.4 million). Interested parties were asked to include in their proposals:

1. A public service center with restaurant, grocery, and curio sales room;
2. Overnight accommodations for at least 60 persons;
3. An automobile service station;
4. Facilities for the rental, mooring, repairing, and servicing of boats;
5. Boats for providing sightseeing tours; and
6. Housing facilities for concessioner employees.

The request further mentioned that a swimming pool might later be added to the program if a need for one arose.345

Chapter 7: Developing the Park

Just two firms, the Fred Harvey Company and a company newly formed by Miami businessmen, the Everglades Park Concessions Company, submitted proposals that fully met all NPS requirements. As mentioned above, Director Wirth had eliminated overnight accommodations for visitors from the program. In the postwar automobile era, the Service was more and more inclined to keep lodges and cabins outside park boundaries. Wirth had been getting pressure from conservation organizations, including the National Parks Association and National Audubon Society, not to allow a lodge in the Everglades. The director did not rule out a lodge at some future date. If a few years’ experience operating at Flamingo showed that the roundtrip to lodgings in the Homestead/Florida City area seriously interfered with visitor enjoyment, the NPS would revisit the lodging question. The director found the decision between the two proposals a difficult one. The Fred Harvey Company had a long history of successful operations in other national parks, while the NPS generally preferred locally based concessioners. Superintendent Beard believed that Harvey had a clear edge in “management ability and finances.” Conversely, it was clear that the Service would reap considerable good will in Florida by choosing the Miami outfit. Wirth decided to proceed with negotiations with the Everglades Park Concessions Company, which soon shortened its name to Everglades Park Company (EPC).346

Local opinion was delighted by the choice of a Miami firm, but dismayed by the elimination of a lodge. In addition, the EPC balked at committing $500,000 to a scheme that now lacked the biggest potential source of income, overnight lodging. John Pennekamp and the Miami Herald were in the forefront of the campaign to get a lodge included in the Flamingo development. In May 1956, a Herald editorial chided: “The latest spate of double-talk from Washington fails to answer the question: Why can’t people sleep in the Everglades National Park?” Pennekamp, Florida Senators Holland and George Smathers, the South Florida AAA, and various Florida chambers of commerce flooded Interior with letters demanding that the lodge be restored to the program. Pennekamp wrote Holland that Wirth’s position was “preposterous” and “untenable.” Holland responded that “Connie means well but he is a stubborn fellow” and perhaps did not wish to be seen as being pushed around by a newspaper. As mentioned above in chapter 6, the issue was resolved in favor of a lodge when Florida Governor LeRoy Collins made it clear that he would not convey any more state-owned land for the park unless the lodge was built. Within days of his February 16, 1957,  

meeting with the governor, Wirth announced that the lodge would be built. To justify his change of position, he pointed to a hastily prepared report of an NPS special study committee, which concluded that a lodge would in no way impair park values.347

The NPS decisions in the 1950s to cut a new park road into the Everglades and authorize construction of a 60-room lodge suggest that the Service’s policies on the development of wilderness areas were rudimentary in this period. In spite of the wilderness guarantee enshrined in the 1934 act, there is no evidence that the NPS studied the impacts of the proposed development on wilderness values. The extensive dredging done in offshore waters to provide fill for the Flamingo developed area, for example, seems not to have raised concerns. Of course, neither the Wilderness Act nor the Environmental Protection Act had yet been passed, and the Service lacked guidelines for measuring the environmental impact of development schemes. Agency managers trusted their judgments and sincerely believed that keeping development to a small footprint would adequately protect wilderness values.

The NPS wanted a unified architectural expression for the buildings at Flamingo. The EPC had retained Coral Gables architect Harry L. Keck to design the restaurant/gift shop portion of the public services building, as well as a gas station. The NPS decided to use Keck for the visitor center/office portion of the public service complex and for a marina services building, with the understanding that Keck would be guided by Cecil Doty’s overall scheme. Keck’s design for the visitor center/restaurant building largely followed Doty’s ideas (figure 7-9, architect’s model of Flamingo visitor center).

![Figure 7-9. Architect’s model of Flamingo Visitor Center and Concession Building, 1957](image)

Keck retained the windowless squat tower faced with local limestone to house utilities for the restaurant; this single vertical element balanced the overwhelmingly horizontal

emphasis of the complex. Keck eliminated a semicircular observation platform projecting from the NPS wing.\textsuperscript{348}

Site preparation at Flamingo began in 1955, with offshore dredging of limestone, both to create channels and boat basins and to provide fill to support building foundations. Roads and parking areas were finished in 1956. In 1957, the service station, marina store, electrical generating plant, the visitor center, and the five buildings of the lodge were completed. The first building in the NPS housing area, east of the visitor center complex, was a four-unit apartment building. Landscape plantings at Flamingo were chosen for their color and sculptural form and included Spanish dagger, philodendron, prickly pear, euphorbia, and coconut palms. Miami architect Gordon Severud designed the lodge buildings, containing 60 rooms for guests and quarters for concessioner employees. On December 20, 1957, the NPS visitor center and concessioner operation at Flamingo opened to the public. In winter 1958/1959, the Flamingo campground (Loop A, 54 sites) and picnic area (60 sites) opened, with five comfort stations and a camp-tender’s residence (figure 7-10, Flamingo comfort station). A temporary amphitheater for ranger talks and other activities was opened in February 1959; it is unclear whether this was at the visitor center or one of the camping loops. In 1959-1960, the buildings at the Flamingo maintenance area were completed, and a swimming pool was added.

Figure 7-10. Flamingo comfort station

\textsuperscript{348} Noted American industrial designer Russel Wright (1904-1976) found the visitor center and other Flamingo structures unimpressive. He thought “a talented architect could have made use of materials indigenous to the southeast and could have much better complemented this great landscape.” Russel Wright to J. E. N. Jensen, NPS Assoc. Dir., Feb. 19, 1969, HF.
to the lodge complex. Water for Flamingo was piped in from a 25-foot-deep well located 16 miles up the main park road.349

The original waste water treatment system at Flamingo sent treated effluent to an eight-acre artificial settling pond. The pond became favored habitat for wildlife, in particular migratory and resident birds. The park christened the feature the Eco Pond and built a viewing platform for visitors adjacent to it (see chapter 20). The Eco Pond emerged as a popular spot for visitors to observe wildlife. In April 1994, the Florida Department of Environmental Protection detected fecal coliform bacteria in well water supplied to Flamingo. A difference of opinion then arose as to whether the NPS needed a state permit for the Flamingo wastewater treatment system. The park erected a fence to prevent visitor access to the Eco Pond, while maintaining the viewing platform. After negotiations between the NPS and the state, the park agreed to apply for a state permit and move to address issues with the Flamingo water treatment system. Ultimately, the park obtained funding to completely overhaul the Flamingo system, completing that work in 2004.350

Hiking trails were always part of the plan for Flamingo and nearby areas. The Service also planned to convert some existing primitive roads used by Flamingo residents since the 1920s to administrative roads/trails. The Coastal Prairie Trail and the Mangrove Trail were opened about the time that the Flamingo Visitor Center opened. The Coastal Prairie Trail originally ran west a distance of 7.5 miles from the Flamingo Visitor Center to near East Cape Sable. In 1965, the portion of this trail from the visitor center to the Flamingo Campground was renamed the Guy Bradley Trail to honor the game warden killed in 1905 (see chapter 2). The Mangrove Trail (now the West Lake Trail) is a half-mile boardwalk loop at the West Lake pull-off. The 1.8-mile-long Snake Bight Trail follows the route of an old marl-surfaced road that ran from the Ingraham Highway to Snake Bight. Bear Lake Road, 1.85 miles long, is the old north-to-south-running road that parallels the Buttonwood Canal. The NPS added a 1.6-mile-long trail from the end of this road west to Bear Lake. The 2.6-mile-long Rowdy Bend Trail departs from the main park road three miles from the Flamingo Visitor Center and runs to the Snake Bight Trail. In the 1960s, rangers led autocades on some of these roads/trails. From the 1970s through the 1990s, the concessioner at Flamingo ran tram tours on the Snake Bight and Rowdy Bend Roads. The Christian

Point Trail is 1.8-mile-long, pedestrian-only trail that departs from the main park road one mile from the Flamingo Visitor Center.\textsuperscript{351}

\textit{The Buttonwood Canal}

Part of the NPS development at Flamingo was the construction of the Buttonwood Canal. The Service extended and widened the existing Flamingo Canal to allow boaters and fishermen to travel between Florida Bay and Whitewater Bay by way of Coot Bay. The 56-foot-wide canal was opened in August 1957. Unfortunately, the canal allowed an exchange of water between Florida Bay and Whitewater Bay, significantly increasing the salinity of the latter. In addition, erosion of the canal banks introduced large amounts of mud and silt into Coot and Florida Bays. The environmental damage caused by the canal was readily apparent by the early 1960s. The Service debated the plugging of Buttonwood Canal for two decades, weighing the environmental damage against the popularity of the canal connection among boaters. By 1972, tidal flows had widened the canal to a width of 80 to 90 feet. The Corps of Engineers let a contract in late 1981 for the construction of a plug at the Florida Bay end, which was completed in July 1982.\textsuperscript{352}

On September 10, 1960, Hurricane Donna passed over Flamingo, with a storm surge estimated at 12 feet. The storm heavily damaged the visitor center, boat shop, and maintenance office and left the campground comfort stations and camp tender's residence with only their walls standing (figure 7-11, Flamingo comfort station after Hurricane Donna). Many plantings


were also uprooted or killed. Extensive repairs and rebuilding were carried out in 1961 and 1962. The park awarded a contract for rebuilding the five comfort stations and replacing the camp tenders’ residence. In the repair of the visitor center, awning windows replaced the original fixed-pane windows on the east side of the lobby.  

A number of additions and improvements were made to the Flamingo developed area over the years. Work began in 1963 for the extension of the Flamingo campground, eventually resulting in camping loops B, C, and T (65 pull-through sites for trailers), along with attendant comfort stations. In 1964, 60 rooms in two new buildings (Buildings F and G) were added at the lodge, along with 24 light-housekeeping cottages in 12 duplex buildings. Additional employee housing, dubbed Smith Hall, was put up in 1965. In January 1967, a new temporary amphitheater was built near the Flamingo Visitor center and remained in use into the mid-1970s. In 1976, a YCC crew built a new amphitheater at the east end of the walk-in campground. In 1986, the park rehabilitate the amphitheater and provided it with electrical service. That same year, the gas station at Flamingo was closed and the building converted to a post office. The Flamingo concessioner, T. W. Recreational Services, in 1991 added employee housing. The employee housing area at Flamingo lies east of the visitor use area. The park constructed several four-unit apartment buildings between 1966 and 1968. The living spaces were raised on pylons, with only garage and storage space at the first floor (figure 7-12, Employee apartments at Flamingo). New NPS housing units were also added in the 1980s.  

Hurricane Andrew in August 1992 did some damage to the Flamingo structures, resulting in new roofs being placed on the visitor center and marina store buildings. In the 1990s and 2000s, new comfort stations replaced all of the Mission 66-era stations in the campgrounds. In addition, the lodge swimming pool was filled with gravel and concrete and the original camp tender’s residence was demolished. Two hurricanes in 2005, Katrina in August and Wilma in September, did extensive damage at Flamingo. A wood-framed building known as the concessioner clubhouse was devastated by Katrina and immediately demolished. Subsequently, four wood-framed dormitory buildings (Buildings A, B, C, and D) were also demolished. The park replaced the damage amphitheater at the Flamingo campground. The hurricanes severely damaged the lodge buildings and the 12 duplex housekeeping cabins. All of these buildings remained unusable while the park considered its options. Members of local communities were nearly unanimous in believing that overnight lodging had to be again made available at Flamingo. There was little interest in elaborate, resort-type development,

See chapter 23 for the evolution of Flamingo concession operations.
but it was considered critically important that clean, comfortable overnight lodging continue to be available. The park initiated work on a Flamingo Commercial Services Plan in 2006, to proceed in tandem with the park’s ongoing general management plan (GMP) process. The hurricane threat and the prospect of future sea level rise make planning for Flamingo particularly difficult. As planning went forward, all of the old lodge buildings, the duplex cabins, and the north half of the maintenance office were demolished in 2009/2010. A number of the buildings at Flamingo have been determined eligible for the National Register of Historic Places (see chapter 17).355

The Flamingo Commercial Services Plan was approved July 23, 2008, and its recommendations included in the draft GMP. The preferred alternative in the draft GMP calls for concessioner-operated overnight accommodations via cabins, houseboats, and ecotents, as well as food service. The park’s ongoing efforts to find a concessioner for Flamingo are covered below in chapter 23.356

355 SAR, 2006, 2007; Michael Savage, personal communication, June 28, 2013; Michael Jester, personal communication, Aug. 29, 2013. Development at Flamingo remained a source of controversy among conservationists. In commenting on the park’s draft master plan in 1977, the Friends of the Earth branded the development at Flamingo an “eyesore” and suggested it not be rebuilt “next time it is leveled by a hurricane.” Chuck Williams, Friends of the Earth to Supt. John Good, Nov. 22, 1977, TWS papers.

The Coming of Mission 66

While the controversies over the main park road and lodging at Flamingo played out, the NPS was lobbying hard for an unprecedented comprehensive construction program that would last 10 years. The brainchild of Director Wirth, the Mission 66 program aimed to significantly increase the service’s construction budgets and revamp its planning process to reflect postwar changes, notably the greatly increased number of automobile tourists. Wirth started planning the program early in 1955. Each park was to come up with a Mission 66 prospectus, and a few parks, including Everglades, were chosen as pilot parks to develop a prospectus in advance of the other units. Superintendent Beard forwarded a first draft of the Everglades Mission 66 prospectus at the end of June 1955. He then conferred with the EODC and national Mission 66 managers to revise it. Many of the decisions on Everglades development that had already been made were incorporated in the Mission 66 plan. In January 1956, President Eisenhower signed off on the general program of Mission 66, including a commitment to increased spending, although he insisted that NPS continue to submit its budgets annually to Congress. The director gave final approval to the Everglades Mission 66 prospectus in September 1956. The park’s prospectus reaffirmed the decision to concentrate visitor services at Flamingo, including the interpretive center, restaurant, marina, campgrounds, boat rentals, camping, picnicking, a ranger station, and NPS housing. The plan called for a second campground, near Royal Palm Hammock, but not on it, to avoid traffic congestion. Pine Island was to continue as the site of the main maintenance center and the location of employee housing. Subsidiary visitor contact facilities and ranger stations were slated for Everglades City, the Tamiami Trail and Key Largo. Everglades City and Key Largo were also to have boat launching facilities. Early versions of the Mission 66 prospectus had park headquarters in Homestead on U.S. 1, until the decision was finally made to
keep it inside the park on Parachute Key. Mission 66 brought increased funding, allowing the NPS to more quickly accomplish the development of Everglades National Park (figure 7-13, park sign for Mission 66 project). 357

Park Headquarters/Visitor Center

In all of its planning, the NPS envisioned park headquarters being co-located with a modestly sized visitor center that would serve to orient visitors to the park and its features. Armed with a park map and perhaps a self-guiding brochure, visitors would then proceed into the park, with the option of getting more interpretive information at the visitor centers at Royal Palm and Flamingo and via waysides. As a step in this

Figure 7-14. Chickee entrance station
direction, by winter 1951/1952 a temporary checking station, a simple chickee, was in operation at the park entrance (figure 7-14, Chickee checking station). The overall concept for the main park entrance was reaffirmed when the national Mission 66 committee visited Everglades in April 1957. In July 1959, a $331,000 contract was awarded to the Eddy Construction Company of Homestead covering the headquarters/visitor center complex and an entrance or checking station, with construction beginning in October. The architects were the Eastern Office of Design & Construction; Edward M. Ghezzi, Homestead; Francis Telesca, Miami; and Harry L. Keck, Coral Gables. The visitor center and headquarters were separate concrete structures connected by a covered breezeway (figure 7-15, Main visitor center).  

The visitor center was a thoroughly modernist, flat-roofed, double-height space, 146 by 74 feet. The interior, with a coffered concrete ceiling, contained exhibits and a theater area for slide shows and films (figure 7-16, interior of Main VC). The lower level walls were almost all glass and the upper levels were covered by perforated concrete screens. Because visitors were expected to make only a brief stop at the facility before entering the park, the visitor center was not air-conditioned. In keeping with the NPS's modernist bent, the furnishing plan called for Eero Saarinen molded plastic chairs, Herman Miller sofas, and Florence Knoll tables (figure 7-17, furnishing plan for headquarters). The borrow pit east of the visitor center that provided the limestone for foundations was made into a pond. Plantings around the HQ/VC used a

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number of exotic species. The headquarters building was occupied in October 1960, and final acceptance came in February 1961.359

The new visitor center was dedicated as part of the festivities marking the park’s 14th anniversary on Saturday, December 9, 1961. Director Wirth was the keynote speaker. Senator Holland, Congressman Dante Fascell, Regional Director Elbert Cox, and William A. Kidd, administrative assistant to Florida Governor Farris Bryant, also spoke to a crowd of about 500. The lack of air conditioning in the visitor center soon proved a problem, and it was damaged by Hurricane Betsy in September 1965. The building was closed for repairs and remodeling, reopening to the public May 15, 1966; the lobby was air conditioned at this period. Changes to the exhibits in the visitor center are addressed in chapter 20.360

The visitor center and nearby park headquarters took a direct hit from Hurricane Andrew in August 1992. Headquarters required major repairs and reconstruction, and the visitor center could not be salvaged. In September 1993, the remains of the visitor center were removed. A temporary visitor center was established in a modular building adjacent to the parking lot. Using hurricane recovery funds, the NPS in 1993-1994 repaired and remodeled the headquarters building, constructing a hipped metal roof over the original flat roof. Soon thereafter, it built a new, freestanding visitor center.

Ground-breaking for the $3 million visitor center, designed by Grieves, Worral, Wright and O’Hatnick of Baltimore, came in January 1995. Named the Ernest F. Coe Visitor Center, it was dedicated on Dec. 6, 1996. Congressman Dante Fascell and NPS Regional Director Jerry Belson spoke, and Ms. Nancy Franklin, Ernest Coe’s niece, offered some memories of the park’s father. The visitor center is a single-story building with a standing-seam metal roof that matches the roof on headquarters. The visitor center houses a bookstore, exhibit space, and a theater. A comfort station in a separate building and an orientation pavilion are near the entrance to the visitor center, connected to it by a boardwalk. The Everglades Association spent $82,000 for the design and construction of the Everglades Discovery bookstore in the new visitor center (figure 7-18, Ernest F. Coe VC).  

From the earliest planning efforts in the late 1940s, Pine Island had been earmarked for employee residences and maintenance operations. The first quarters building was constructed in 1950, with three more added in 1951, designed by Fred Keck. In 1953, the park added a maintenance shop and offices, a 43-foot-by-156-foot building. The 1958/1959 season saw the construction of five employee residences, several apartment and dormitory buildings, two equipment sheds, a water system, and a 5,600 square-foot equipment storage/warehouse structure. In this same period, the park dug a 20-foot well to supply water to Pine Island and laid out approximately nine miles of unpaved fire roads. As described below in chapter 15, Pine Island was part of the park’s prescribed fire program. In 1989/1990, the Florida National Parks and Monuments Association, the park’s cooperating association, built a new, 4,000-square-foot office/warehouse structure. Hurricane Andrew in August 1992 damaged three residences at Pine Island beyond repair and they were demolished (see chapter 16). As of 2005, the Pine Island residential area had nine single-family houses, three duplex units, and several mobile homes (figure 7-19, Pine Island employee residence). Between 2000 and 2006, several utility structures were erected, including a laundry building and a
wastewater treatment facility. Buildings at Pine Island will be evaluated as part of a Mission 66 National Register nomination that is to be prepared.362

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**Long Pine Key**

The NPS developed the park’s second campground and an associated picnic area on Long Pine Key, down a short dead-end road running south from the main park road. In 1957, the Service had already installed about 20 miles of fire roads on the key to facilitate its prescribed burn program (see chapter 15). The campground was opened for primitive camping by the winter of 1960/1961, although the camptender’s residence and four comfort stations were not ready until the following winter. A 50-seat amphitheater for ranger talks and other activities was also created. Lighting and electrical improvements were added in 1986, and the campground had been maintained in its original location. After opening with 73 picnic sites and 59 campsites, the facility in 1963/1964 was extended to 108 campsites, with two additional comfort stations (figure 7-20, laying a concrete pad at Long Pine campground). In 1968, in response to complaints that too much of the park was “locked up,” Superintendent Allin approved the conversion of two fire roads on Long Pine Key to “primitive auto

trails.” The park created two gravel-surfaced loops, of three and five miles respectively. Park naturalists were not very pleased with this decision to allow more cars in the pine uplands. When the park decided in 1974 to designate much of the key as wilderness, the motor loops were converted to hiking trails (see chapter 10). At present, the key has a 6.7-mile-long hiking/biking trail that runs in a generally westerly direction from the campground to the main park road at Pine Glades Lake. The other trails are for hiking only and also serve as fire roads. Long Pine Key received a new entrance station in 1992.

Figure 7-20. Laying a concrete pad at the Long Pine Campground, early 1960s

Tamiami Developed Area/Shark Valley

When Everglades National Park was established in 1947, a seven-mile-long, dead-end road already existed running south from the Tamiami Trail on the western edge of Shark Slough. The Humble Oil and Refining Company cut the road in 1946 in order to drill two exploratory oil wells, one about 2-1/2 miles south of the Tamiami Trail and the second at the end of the road. Material for the road bed was dredged from alongside the road, creating a canal. Humble dug a moat around the site of the well at the end of the road to provide fill for a drilling platform. Both of the wells came in dry, and the entire property became part of the park. In 1952, the park converted a shelter at the well site closest to the Tamiami Trail to a temporary ranger outpost. That same year, the NPS erected a steel-frame fire observation tower at the end of the Seven-Mile Road. Later in 1952, the park stopped using the ranger outpost in Shark Valley and established a ranger station about five miles to the west at the Zady property near the 40-mile bend on the Tamiami Trail. This was one of the service stations and restaurants that had been established at 10-mile intervals when the trail was opened in the

late 1920s. The Seven-Mile Road remained closed to the public, although rangers at times brought special groups in. At one time, NPS planners wanted to locate the Tamiami District ranger station at Seven-Mile Road, but it has remained at or near the site of the Zady property. Until the 1980s, rangers used existing buildings at that site, which included an office/bunkhouse building, residence, and two-car garage. New arrivals were warned that children would have to be driven 10 miles from the ranger residence to the nearest school bus stop. By the late 1970s, three residential trailers had been installed. In the 1980s, the park added two permanent residences for law enforcement rangers and a new ranger station/maintenance office structure about 1/8 mile south of the Tamiami Trail.

From early on, NPS planners wanted to provide visitor access to Shark Valley, one of the best places in the park to experience sawgrass marshes and view wildlife. In 1964, Accelerated Public Works funding (i.e., funding outside of regular Park Service appropriations) became available. The Service hurriedly prepared plans to convert the dead-end road to a one-way loop road by creating a new curving road alignment to the east of the existing road. The idea was that visitors would drive south on the new serpentine road segment and return on the straight-line road segment. The existing steel-frame fire tower would be replaced by a combination fire lookout/observation tower to provide visitors with a commanding view over the sawgrass marshes of the Shark Slough. Four borrow pits, 20 to 25 feet deep, were excavated to provide fill for the new roadbed, and these filled with water to become small lakes. At the suggestion of Ranger Irwin Winte, the road was routed around Otter Cave Hammock, where limestone openings led to a cave sometimes occupied by otters.

The Shark Valley observation tower, completed in November 1964, is one of the most dramatic expressions of Mission 66 modernism. The reinforced-concrete tower rises 55 feet above the surrounding marsh, with an observation platform at 35 feet. The platform is reached by a broad curving ramp. A 1,600-square-foot circular one-story building near the entrance to the ramp contained a comfort station and studio apartment (figure 7-21, Shark Valley tower). Plans for the tower and comfort station were prepared in the NPS Eastern Office of Design & Construction, with architect Benjamin Biderman receiving credit as designer. Biderman was also involved in the design of the Look Rock Tower at Great Smoky Mountains National Park. The Look Rock Tower and a ramped observation tower at Clingman's Dome in Great Smoky Mountains heavily influenced the design of the Shark Valley Tower. The local associated architect for the Shark Valley structures was Edward Ghezzi. The new road,
renamed the Shark Valley Loop Road, opened to the public on Feb. 4, 1965. In these early years, the road was open to visitors’ automobiles, when water levels were not too high.367

High water from 1968 to 1971 forced the closure of the Loop Road, and considerable debris accumulated on the road. For much of this period, rangers were able to ride airboats all the way to the observation tower. The road was cleared of debris in 1971. As described below in chapter 20, the park began tram tours in 1972 and closed the Loop Road to private automobiles, although it remained open to pedestrians and bicyclists. A small housing area for park staff was developed near the start of the Loop Road. Ranger Irwin Winte lived there for a time and the area was known as Winte’s Island. In December 1972, a three-bedroom trailer was moved to the island and became the home of an interpretive ranger. In the 1980s, the park added an employee residence on Winte’s Island and a small visitor center/office. In 1987, a 2.7 million

dollar project resulted in the elevation of the Shark Valley Loop Road above typical high water levels. The project caused a great deal of frustration for park managers. The contractor given the award for reconstruction of the road in 1986 was terminated for nonperformance and the bidding process had to be repeated.368

A new 230-square-foot entrance station and a new comfort station were constructed at Shark Valley in 2009. A new visitor center/concessioner building meeting the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) standards was constructed in 2013 and dedicated in March 2014. The existing 1983 visitor center has been demolished and the visitor parking lot has been reconfigured.369 See chapter 20 for the history of the interpretive program at Shark Valley.

Everglades City

Many in Collier County, notably Barron and Miles Collier, had high hopes that Everglades City would become the “western gateway” to Everglades National Park. This hope was a major factor leading the Colliers to donate 32,000 acres to the new park in the 1950s. Throughout the late 1940s and the 1950s, interests in Collier and Monroe Counties periodically cranked up a campaign for a highway from Everglades City to Cape Sable. The more visionary thought it should continue from the Cape across Florida Bay to Islamorada or Marathon in the keys. The editors of the Key West Citizen and the state legislators representing the keys were particularly keen on a west-coast-to-keys highway. The NPS had no interest in such a desecration of the Everglades wilderness. The service consistently conceived of Everglades City as a place for visitors to get an orientation to the park and then take a concessioner boat tour, rent a canoe or kayak, or launch a private boat. While the service was occupied with getting visitor facilities established at Royal Palm and Flamingo, the Collier Corporation helped out by erecting an amphitheater facing the Barron River in Everglades City where NPS naturalists could give talks to visitors.370

The Everglades Mission 66 prospectus envisioned a district ranger station/interpretive center, employee quarters, and a boat basin at Everglades City on a 20-acre tract. Between 1958 and 1961, the NPS built a boat basin and four employee residences on this parcel. Boat tours offered by concessioner Sammy Hamilton operated from a private dock, because the NPS boat basin had no shelter or comfort station. After a number of unsuccessful attempts, the NPS persuaded Congress to appropriate funds, and a two-story ranger office/visitor contact point/comfort station building

368 Dayhoff, Chronology; SAR, 1987.
and separate maintenance building were erected in 1966/1967 at the cost of $57,000 (figure 7-22, Everglades City ranger station and boat basin). The first floor of the visitor center was devoted to storage and concessioner facilities, with a ranger station and a small ranger station/interpretive area on the second floor.\textsuperscript{371}

The Everglades National Park Protection and Expansion Act of 1989 “authorized and directed” the Service to construct a new visitor center in Everglades City. Congress wanted this facility to be known as the Marjory Stoneman Douglas Center “in commemoration of the vision and leadership shown by Mrs. Douglas in the protection of the Everglades and Everglades National Park.” The NPS had asked that this provision be deleted from the bill, arguing that the Service had higher construction priorities and needed flexibility in locating its facilities. Congress left the language in, but to date has not appropriated funds for the center. In 1994, the park renovated the visitor center, making the second floor exhibit area wheelchair accessible. After more than 40 years, the facility at Everglades City is obsolete, has structural problems, and has exceeded its serviceable life. In 2012, the park began a planning process, including a value analysis, for the redevelopment of the Everglades City facility. The preferred

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\caption{Everglades City ranger station and boat basin}
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alternative in the park’s draft GMP calls for the construction of a new, modest-sized visitor center and other improvements, at an estimated cost of $7.9 million.372

**Key Largo**

In February 1953, NPS Assistant Director Thomas Allen identified two properties at Tavernier as potential sites for the planned Florida Bay ranger station. The Service soon purchased a 14-acre tract at milepost 98.7 of U.S. 1 on Key Largo, fronting on Florida Bay. This parcel contained a frame house built sometime in the first half of the twentieth century. The park converted the building to a ranger residence and ranger station, which was staffed beginning in April 1954 (figure 7-23, Key Largo ranger station). After 1989, the house ceased being used as a residence, and has remained a

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Figure 7-23. Key Largo ranger station
ranger station. At the time of purchase, the house was just located off the highway. Versions of the master plan in the 1950s and 1960s called for a small visitor center, a nature trail, and a publicly accessible boat basin at Key Largo. To date, the park has never had the resources to develop public services at its small Key Largo property. There is an interpretive wayside and park map at the site and it provides an office for a park outreach coordinator who conducts programs in Monroe County schools. The lawn behind the ranger station receives steady use by Monroe County emergency response agencies as a landing pad for helicopter evacuation of individuals injured in automobile accidents and other mishaps.373

In 1994, the NPS purchased an adjacent 3.7-acre property, the 26-unit Reef-comber Motel. Built in 1961, the motel had two-single story buildings oriented perpendicular to U.S. 1 and flanking a swimming pool and patio. The Service filled in the swimming pool, demolished the motel building on the south of the pool, and moved the ranger station to a site near the west end of the north motel building. The NPS purchased the motel to serve as the centerpiece of an interagency science center, known as the Florida Bay Interagency Science Center. The motel building is used as offices for researchers and lodging for researchers. In 2010, the Service erected a prefabricated concrete modular laboratory and dormitory building and prefabricated concrete modular residence. A dock for researchers and visitor protection personnel is maintained on Florida Bay.374

Chekika Recreation Area

Included in the state-owned acreage transferred to Everglades National Park as part of the East Everglades expansion was Chekika State Recreation Area, located six mile west of Krome Avenue at the end of Southwest 168th Street. The state acquired the property in 1970 from the Grossman family. Samuel Grossman, a paper-box manufacturer from Ohio, purchased considerable acreage in the East Everglades in 1917. Among this acreage was a sizable upland area that became known as Grossman’s Hammock. In the 1940s, the Grossman family allowed oil exploration on the hammock. No oil was found, but drilling tapped into an artesian well producing up to 3 million gallons per day of sulfur-laden water. The Grossmans took advantage of these waters and opened the hammock to the public as Mineral Springs in 1954.


374 Supt. Ring to RDSE, July 1, 1992, EVER 56572; Michael Savage, personal communication, June 26, 2013; Buttram and Memory.
They cleared a portion of the hammock and built a large artificial bathing area, Lake Chekika, and a fishing hole. At the site of the spring, they constructed a fountain and spillway structure of rough-hewn limestone. Between the early 1950s and 1970, the site was developed with roads, a campground, trails, a bathhouse, and a cabin/office sided with Dade County pine that was in use by 1957 at the latest. In spite of the rotten-egg aroma from the sulfur-containing water, the Mineral Springs proved popular with local residents.  

Under state ownership from 1970 to 1991, the operations at Grossman's Hammock remained largely unchanged, focusing on swimming and camping. In the first decade after taking over, the state built an entrance station, a 160-space parking area, and a boardwalk from the parking lot to the recreational area. In the 1980s, the state replaced the bathhouse with a new structure, relocated the camping area, and built a shower/restroom building for it. Concern over pollution of ground and surface water from the sulfur-infused well water caused the state to cap the artesian well in 1985.

Figure 7-24. Cabin at Chekika, built 1950s

New shallower wells were drilled into the Biscayne Aquifer to supply Lake Chekika. The state at this time demolished and rebuilt the fountain/spillway, possibly reusing some of the stone. The state kept the cabin and used it as an office/interpretive center. The NPS has determined that cabin is not historic; because of its deteriorated condition, it will be demolished (figure 7-24, Cabin at Chekika, built 1950s).376

In 1992, the NPS opted to end swimming at the site, citing the high cost of maintenance and safety concerns. The Service drained Lake Chekika and renamed the area the Chekika Day Use Area. In August 1992, Hurricane Andrew severely damaged the boardwalk and the park rebuilt it. In 1999 the NPS eliminated artificial berms, removing cattails and other unwanted vegetation and replanting with sawgrass. Hurricane Irene in fall 1999 did additional damage at Chekika, and the park closed it. Staffing shortages and higher maintenance priorities elsewhere in the park prevented a quick reopening. Incoming superintendent Dan Kimball made it a priority to reopen Chekika, which is an important spot for picnics and outings by local residents. Park maintenance staff, volunteers, and college students on spring break helped to clear and restore the area. The park partnered with community groups to bring 400 Miami-Dade residents to a preview event in April 2006 featuring free food, music, and interpretive talks. On January 6, 2007, the recreation area was reopened on a seasonal basis (December 1 to April 30) after being closed for eight years.377

In 2004, Congress authorized the park to purchase from willing sellers up to 10 acres of land in the East Everglades for administrative, housing, maintenance, or other park purposes. The property was to be outside the park boundary. In 2012, the NPS purchased a property with a house and outbuildings east of Krome Avenue and just north of 168th Street. Remodeled existing buildings and new construction at this property will eventually become the park’s East Everglades Operations Center, housing ranger offices and a fire management station. A visitor contact station is also envisioned with wayside or kiosk exhibits. Once the operations center is up and running, existing converted residences in the East Everglades used by staff will demolished.378

**Maintenance**

Once the park began to be developed with roads, trails, and buildings, this infrastructure of course had to be maintained. In the park’s early years, the maintenance shop was colocated with park headquarters in Homestead, several miles from the main park entrance. Park maintenance staff moved into a permanent shop on Pine Island

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376 Memory, 1-6.
in November 1953. In 1960, a maintenance shop was added at Flamingo, and one was built at Everglades City in 1967. The park maintenance division was last reorganized in 1999 and now consists of three districts: Pine Island, Flamingo, and Gulf Coast, each with its own shop facility. There is a small shop on the Tamiami Trail, which is functionally part of the Gulf Coast District. The division also has a utilities branch, which is primarily concerned with water supply and wastewater treatment; a communications branch; and a professional services branch, which handles project management.379

Job Corps Camp

A Job Corps camp was placed in the remodeled Iori Farms complex in the park in 1965. Created by the Economic Opportunity Act of 1964 (P.L. 88-452), the Job Corps program was part of President Lyndon Johnson's War on Poverty. The program was patterned on the Civilian Conservation Corps program of the 1930s and aimed to provide vocational and academic training to disadvantaged men and women aged 16 through 21 (later expanded to age 24). Partly because the youths' home environments were frequently seen as detrimental, enrollees were placed in residential centers, some in urban areas and some in parks and forests where they could do conservation-oriented work. Over the years, Job Corps enrollees have accomplished a considerable amount of maintenance and natural resource management work in the park.380


A vast wetland ecosystem, the Everglades is vitally dependent on water. As described above in chapter 1, Everglades National Park includes roughly one-quarter of the historic Everglades Basin. In addition, the park lies at the bottom end of a water regime with origins far to the north. Over the last 5,000 years, the flora and fauna of the Everglades have adapted to a yearly cycle of a wet period (the hydroperiod) and a dry period. Historically, the water that reaches the lower Everglades from the north as sheet flow has been critical for maintaining hydroperiods. The lowering of the water level in the dry winter season (typically November to April) allows species like the American crocodile to nest and concentrates fish and crustaceans in shallow pools, providing food for nesting birds. If the winter is too dry or too wet, the effects on wildlife can be severe. Another consequence of shorter than usual hydroperiods is that dead sawgrass fails to form muck to replenish Everglades soils. The salinity of Florida Bay is also affected by the amount of freshwater it receives from the Everglades. Well before the park’s establishment, the state-funded construction of drainage canals, the Hoover Dike along the south shore of Lake Okeechobee, and the Tamiami Trail had affected the flow of surface water reaching the lower Everglades. NPS officials in 1947 realized that they were taking responsibility for an environment that was already compromised. They also understood that they would need the cooperation of managers of lands and waters to the north, whose decisions would largely determine how much water flowed into the park.

The Floods of 1947

The year 1947 was marked not only by the dedication of Everglades National Park but by prolonged and disastrous flooding in the region. The rains that year came early and remained heavy through the spring and summer. In the fall, two hurricanes struck, one on September 17 and another on October 11. Some stations in South Florida measured more than 100 inches of rain for the year. The result was widespread flooding and extensive property damage. About five million acres were inundated for up to five months. Particularly hard hit were communities established just west of the Atlantic Coastal Ridge in the Everglades, notably Hialeah, Miami Springs, and
Opa-Locka. Damage was conservatively estimated at $59 million (the 2014 equivalent of $627 million). Human casualties were minimal because the Hoover Dike was not breached and the managers of the Everglades Drainage District (EDD)\textsuperscript{381} flushed tremendous amounts of water to the ocean via the St. Lucie Canal and the canalized Caloosahatchee River. In the wake of the damage, farmers, ranchers, and coastal residents were as one in demanding protection from future floods. As Lamar Johnson, chief engineer of the EDD at the time, put it: “Everywhere the tom-toms were beating to prevent a recurrence of the 1947 floods.”\textsuperscript{382} This started a chain of events that ended in the U.S. Army Corps of Engineers undertaking an unprecedented program of flood control and water management in South Florida.\textsuperscript{383}

Well before 1947, the EDD and the U.S. Army Corps of Engineers (the Corps) had begun to study ways to better address South Florida’s water problems. Flooding was not the only issue. Soil subsidence was a perennial problem for Everglades farmers, and dry years brought wildfires and muck fires as well as salt water intrusion into drinking water wells. Substantially more was known in the late 1940s about Everglades geology and soils than in the early twentieth century, when the state had built its drainage canals. The U.S. Geological Survey (USGS), the U.S. Soil Conservation Service, the state’s Everglades Experiment Station at Belle Glade, and the Florida Soil Science Society had compiled valuable data in the 1930s and 1940s. One key finding was that a depth of soil sufficient to grow crops was present only in a band extending about 15 to 25 miles south and east of Lake Okeechobee. Farther south in the Everglades, the soils generally were too shallow to support agriculture. Following the 1947 disaster, Florida’s senators, Spessard Holland and Claude Pepper, asked the Corps to develop a comprehensive flood-control plan for South Florida. Expanding upon the work already done by the EDD, the USGS, and others, the Jacksonville District of the Corps hurriedly put together a plan in the final months of 1947.\textsuperscript{384}

\textsuperscript{381} See chapter 1 for the origins of the Everglades Drainage District (EDD). Because land owners failed to pay the EDD’s taxes and its bond holders tied it up in litigation, the EDD had virtually ceased to function by 1931. State legislation and help from the New Deal’s Reconstruction Finance Corporation put the district back on its feet in the 1940s. By 1947, the EDD was making progress on deferred maintenance on its existing canals and planning for the future. Lamar Johnson, \textit{Beyond the Fourth Generation} (Gainesville: University Presses of Florida, 1974), 153-155.

\textsuperscript{382} Johnson, 160.


\textsuperscript{384} Luther J. Carter, \textit{The Florida Experience: Land and Water Policy in a Growth State} (Baltimore: Johns Hopkins University Press, 1974), 89-91; Godfrey, 29-33. See Godfrey for the pioneering research on the Biscayne Aquifer and South Florida’s water regime done by USGS geologist Garald Parker.
The Central & Southern Florida Flood Control Project

The Central & Southern Florida Flood Control Project (C&SF Project) that the Corps developed was based on two main concepts: storing fresh water in order to later dispense it to various users as needed and getting rid of excess water to prevent flooding. It was the first plan that recognized the Kissimmee River watershed, Lake Okeechobee, and the Everglades as a single, interrelated hydrological system. The project had two primary goals: protecting the lower east coast from flooding and establishing an expanded agricultural area in the northern reaches of the Everglades. Secondary goals included the protection of the wildlife of Everglades National Park as well as preventing soil subsidence and the intrusion of salt water into the Everglades. The plan focused on the engineering works need to accomplish the primary goals. It lacked detail on how the secondary goals would be accomplished. The project's aims were to be achieved by dividing the Everglades into compartments surrounded by levees and then moving water among compartments and canals (figure 8-1, Central and Southern Florida Flood Control Plan). The engineering works planned to accomplish these goals included:

1. The construction of a 100-mile-long perimeter levee located a few miles west of the Atlantic Coastal Ridge. The levee would protect existing communities like Hialeah, Miami Springs, and Opa-Locka and allow for additional residential and agricultural development in East Everglades areas traditionally subject to seasonal flooding.
2. Improving the Hoover Dike and extending it to completely surround Lake Okeechobee. The lake would be the main reservoir for holding South Florida’s freshwater.
3. The establishment of three water conservations areas (WCAs) covering 1,500 square miles in Palm Beach, Broward, and Dade Counties. Soils were too thin in these areas to support agriculture, and once surrounded by levees, the WCAs would be available to store water.
4. Establishment of a 700,000-acre Everglades Agricultural Area (EAA), surrounded by levees and equipped with giant pumping stations to move water into and out of it.
5. Expanding the capacity of the existing diagonal canals leading from the Everglades to the Atlantic Ocean and building new ones.
6. Installing plugs near canal outlets to better control salt water infiltration.
7. Undertaking engineering works north and west of Lake Okeechobee, notably the channelization of the Kissimmee River, allowing marshes to be reclaimed for stock grazing and other uses.385

385 Godfrey, 36-37; Carter, 92-93; Blake, 177-178; McCally, 150-153.
Figure 8-1 Central and Southern Florida Flood Control Plan
Chapter 8: Park Water Needs, Establishment (1947) to 1970

The first six items were planned as phase I of the project and the Kissimmee River work as phase II. The cost of the entire project was estimated at $208 million, with the federal government covering 85 percent and state and local governments 15 percent. The Corps held public hearings on the plan and consulted with the U.S. Fish & Wildlife Service (FWS) on the plan’s effects on fish and wildlife. There is no record of any Corps consultations with the NPS before the plan was released. A few details were changed as the proposal made its way from the Corps’ Jacksonville district, by way of the South Atlantic Division and the Board of Engineers for Rivers and Harbors, to Chief of Engineers Raymond A. Wheeler. Wheeler then sent the proposal to Congress, recommending that $70 million be appropriated to allow the Corps to begin phase I. Led by Senator Holland, Florida politicians and businessmen orchestrated a major publicity and lobbying campaign on behalf of the C&SF Project. The EDD and Palm Beach, Broward, and Dade Counties published a Tentative Report of Flood Damage, better known as the “Weeping Cow” book (figure 8-2, Weeping Cow booklet). The report was filled with photographs of the devastation caused by the 1947 flooding. Its familiar name came from the dramatic cover illustration depicting a nearly inundated, crying cow beneath a lightning-filled sky. Project supporters made sure that every member of Congress and President Truman got a copy.386

Reaction of the Department of the Interior to the C&SF Project

In February 1948, before the bill authorizing the C&SF Project went to the Congress, the Corps sent it to the Department of Interior for comment. The project had major implications for several interior agencies: the NPS, the FWS, the Bureau of Indian Affairs, and the U.S. Geological Survey (USGS).387 NPS Director Newton Drury and his aides were unhappy with the short period of time allowed for review. Everglades National Park had been established just the year before, and the Service had not had time to study the water needs of the park. It was obvious to the NPS and major conservation organizations that the C&SF Project would critically affect the water available to the park, but a knowledge base for intelligent comment on the project was lacking. Because of this, Drury sought to have the park’s interests explicitly protected in the legislation authorizing the project. In April, he wrote the Department

387 FWS had several wildlife preserves that would be affected by the project, and one of the water conservation areas embraced the Seminole Indian Reservation in Broward County.
of Interior solicitor recommending that the bill authorizing the C&SF project include language along these lines:

*Provided, however, that no work which affects or may affect the Everglades National Park shall be undertaken on said project unless a plan of operation satisfactory to the Director of the National Park Service and the Chief of Engineers has been agreed upon.*

The Service approached Senator Holland about this proposed language, but Holland declined to push for its inclusion. In May, Drury withdrew his request to the solicitor, writing:

Since sending you our memorandum of April 21 we have had informal discussions with representatives of the Department of the Army and believe that any plan

388 Dir. to the DOI Solicitor, Apr. 21, 1948, EVER 42242.
of flood control will be taken up with us insofar as it may affect the Everglades National Park.

Interior’s official comments on the C&SF Project went to the Corps on April 13, 1948. The letter stated that the NPS “concurs in the general program outlined in your report and its objectives,” but added that decisions affecting Everglades National Park needed to be made jointly by the Service and the Corps. The Corps was reminded that the NPS “has had neither time nor resources to make studies on the actual effect of the project on the park.” Interior did state that “the question is not one of too much water, but a guarantee that there shall not be too little.” The NPS at this early date believed that the main effects of too little water in the dry season would be salt water intrusion and fires. Only later would the Service have a clearer understanding of how the entire ecological balance in the park depended on the amount, timing, location, and quality of water deliveries. The letter closed by insisting that “it is felt imperative that plans of operation [for the project] should be the subject of negotiated agreements between the Corps of Engineers and the National Park Service prior to construction [emphasis added].”

In the Corps’ response to Interior, Chief of Engineers Wheeler expressed his satisfaction with the department’s concurrence in the C&SF Project and promised that Interior’s comments would be sent to Congress along with the project plan to become part of the official record. Wheeler agreed that it was “essential” that “there be close cooperation and negotiations between the Corps of Engineers and the National Park Service in devising plans and operating procedures which would affect the Everglades National Park.” He stopped short of any commitment that the Corps would reach agreement with the NPS prior to the construction of any of the project’s works, as had been requested by Interior.

In retrospect, it is evident that the entire history of the conflicts between the Corps and the NPS over the operations of the C&SF Project is foreshadowed in this correspondence from early 1948. Had Director Drury succeeded in getting language protecting the park into the project’s authorizing legislation, that history might have been quite different. The project, however, was overwhelmingly motivated by the desire to prevent floods in the expanding communities along the Atlantic coast and to benefit agriculture. In addition, the Truman administration had a decidedly utilitarian conception of the conservation of natural resources; bluntly stated, it favored people over birds. In early 1948, there was no real possibility that Everglades National Park would be singled out among all the beneficiaries of the C&SF Project for special

consideration in the authorizing legislation. The NPS had to settle for the informal, nonbinding assurances of cooperation offered by the Corps.

The Subcommittee on Flood Control and Improvement of Rivers and Harbors of the Senate Committee on Public Works held hearings on the C&SF Project on May 12 through 14, 1948. Florida’s congressional delegation did its best to ensure that only strong supporters of the project appeared. Testimony at the hearings emphasized the project’s benefits for agricultural and the need to avoid a repeat of the 1947 floods. No NPS officials and no representatives of national conservation organizations testified. John Baker, president of the National Audubon Society, had hoped to testify, but was unable to appear. He did send several letters and telegrams, both to the subcommittee and the Corps, expressing concern that the project overemphasized flood protection and gave insufficient attention to storing water for release in times of drought. Baker believed that the maintenance of high water levels in Lake Okeechobee was critical. He thought that water stored in the lake could be released during drought periods, thus providing sufficient water to allow the formation of bird rookeries within Everglades National Park. Devereux Butcher, executive secretary of the National Parks Association (NPA), visited South Florida in the winter of 1947/1948 and attended the Corps’ hearings on the C&SF Project.391 In April 1948, Butcher told the NPA’s executive committee:

[T]he greatest danger to the park lies in the fantastic plan of the Army Engineers to control floods in south Florida. . . . The effect that this control of the natural flowage of water might have upon wildlife and plant life within the park cannot be determined now, but it could conceivably do irreparable harm.392

Less than a year later, the Izaak Walton League of America noted that the project had “potential . . . to raise [C]ain in the national park,” without offering any further detail. It is apparent that some conservationists from the beginning were troubled by the implications of the project. No one at the time understood just how the project would affect the park, making it impossible for skeptics to go much beyond general statements of concern.393

Several historians have pointed to the near-universal support, especially in Florida, for the C&SF Project. At the onset, Marjory Stoneman Douglas believed the project “would produce substantial benefits from the preservation of fish and wildlife

392 Minutes of NPA Executive Committee Meeting, Apr. 28, 1948, NPCA papers, series 1, box 13.
resources. Several large land owners—the Collier Corporation, rancher John Lykes, and dairymen Ernest Graham—did oppose the plan. The Collier Corporation stated that it could not back the plan because it had not received enough information on area hydrology and the details of the engineering works contemplated. Concern over the taxes that would be levied to pay for the works probably was the most important factor in landowner opposition. One vocal critic of the project was Edwin C. Menninger, publisher of the *Stuart Daily News*. The huge volumes of water sent down the St. Lucie Canal in 1947 had devastated coastal waters, turning them into a “muddy disaster” and ruining sport fishing. Menninger exhorted Senator Holland:

> Some hard-shelled conservationist needs to arise in Congress and awake his associates to the fact that we are not interested in getting rid of the water. The engineers think only in terms of ditches. The greatest service you could render Florida would be to organize a comprehensive program to preserve, impound, and treasure the water, as it is our lifeblood. The longer I live here, the more I am impressed with the necessity of stopping this infernal ditch-digging.

The C&SF Project was included in the Flood Control Act of 1948, signed by President Truman on June 30, 1948. The act authorized $70 million for phase I and appropriated $16.3 million, to become available as soon as state and local authorities had provided their share, amounting to $3.7 million. The Corps could not immediately begin the project, because the Florida legislature was not due to convene until April 1949. The 1949 session of the legislature enacted three laws that permitted the project to go forward. One measure provided for the elimination of the EDD once its debts had been paid. A second law established the Central and Southern Florida Flood Control District (FCD), which was to take over the responsibilities of the EDD and the old Okeechobee Flood Control District. The FCD embraced more than 15,000 square miles extending from Brevard County to Dade County. Finally the legislature appropriated $3.25 million, representing the state’s initial contribution to construction costs for the C&SF Project. This was the first time the state had allocated any portion of its general revenues to a flood-control project. The only point of contention in the legislature was how to apportion the FCD taxes that would underwrite the local share of construction costs. If taxes were apportioned according to the benefits expected from the project, agricultural interests in the upper Everglades would bear most of

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395 Sam C. Collier, Collier Corporation, to Sen. Holland, May 11, 1948, SLH papers, box 178; McCally, 150; Blake, 176.
397 Florida had created the Okeechobee Flood Control District in 1929 because it was not clear that the EDD had authority to undertake flood control, as opposed to drainage, works. Blake, 145.
the cost. If apportionment was based on property values (the ad valorem basis), urban residents along the coast would pay more than 90 percent of the taxes. At that time, rural interests dominated the Florida legislature, and the ad valorem basis was adopted. This fateful decision ensured that agriculture's water needs would be subsidized by urban landowners, a situation that remains unchanged. 398

**Implementing the Flood Control Project**

The Corps and the FCD shared responsibility for completing and operating the C&SF Project. The Corps designed and built the works, while the FCD was responsible for data collection, land acquisition, and most of the liaison work with local communities. As portions of the system came on line, the FCD was to have day-to-day operating responsibilities. In times of high water and potential flooding, though, the Corps would make final decisions on water releases. A five-member board of directors appointed by the governor oversaw the operations of the FCD. The district established its headquarters at West Palm Beach and named W. Turner Wallis as chief engineer. Wallis's associate, Lamar Johnson, came on as an assistant engineer. Both men had experience in the Everglades dating to the state's drainage work of the 1920s.399

Construction on the project proceeded slowly for several reasons. The original plan had been speedily put together in a few months in 1947. The plan could not be effectively implemented without substantial additional study, and minor modifications had to be made as new data became available.400 In addition, Congress was often tardy in appropriating funds for construction. Work on the perimeter levee to protect urban areas along the Atlantic Coast began in January 1950, was about 75 percent complete by 1960, and was largely finished by 1963. The levees surrounding the EAA were completed in 1960. Work on WCA 1 was completed by 1959, but work on WCAs 2 and 3 was not completed until late 1962. Park Superintendent Warren Hamilton participated in the official dedication of WCA 3 by breaking a bottle filled with water from Lake Okeechobee on a spillway structure. Even when the levees around the WCAs were finished, it took years for the water in them to reach target levels. The FWS agreed to manage WCA 1 as the Loxahatchee National Wildlife Refuge.401 The Florida Game

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398 Godfrey, 41, 47-48; Blake, 181.
400 Changes included reducing the size of the WCAs from 1,500 to 1,300 square miles and shifting the location of some levees; they did not alter the basic plan of the project.
and Fresh Water Fish Commission took on a similar role, managing WCAs 2 and 3 as the Everglades Wildlife Management Area. The Congress authorized phase II of the project in 1954, and the work of channelizing the Kissimmee River and draining its marshes was conducted from 1962 to 1971. At a cost of $35 million, the project converted a 92-mile-long river that meandered through wetlands into an arrow-straight 52-mile canal, designated C-38. Five dams with locks impounded water in shallow pools. An estimated 30,000 acres of wetland were drained.\textsuperscript{402}

The major components of the C&SF Project were in place by the mid-1960s, essentially turning the Everglades into a managed hydrological system. Four large sealed compartments—the EAA and the three WCAs—now lay between Lake Okeechobee and Everglades National Park (see figure 8-1). Levee L-29, along the southern boundary of WCA 3, formed a 20-mile barrier across the upper portion of the Shark River Slough. The borrow canal for the levee, the L-29 Canal, ran between the levee and the Tamiami Trail. In the late 1960s, the Corps built two diagonal levees (L-67A and L-67C) that divided WCA 3A to the west from WCA 3B to the east. This was done to isolate the northwestern portion of the area (WCA 3A) from the southeastern portion (WCA 3B), because of high rates of seepage in the latter. The result was that less water was available in WCA 3B, which fed the Northeast Shark Slough. From the 40-mile

\begin{figure}[h]
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\includegraphics[width=\textwidth]{figure8-3.png}
\caption{One of the S-12 water control gates, 2010}
\end{figure}

402 Blake, 181-184; Godfrey, 53-55, 141.
bend in the Tamiami Trial to a point 11 miles to the east, four gated spillways (S12-A, S12-B, S12-C, and S12-D) allowed water to be released from the L-29 Canal into the park, at the discretion of the FCD and the Corps (figure 8-3, One of the S-12 water control gates). From water control structure S12-D east to Krome Avenue, some 50 culverts running under the Tamiami Trail allowed water from the L-29 Canal to flow into the northeast Shark Slough, if the water level in the canal was high enough. Before the construction of L-29, surface water flows from the north had been fairly evenly distributed among culverts under the old Tamiami Trail. Now, water flows into the lower Everglades Basin would come almost entirely at a few point sources (the S-12s), all in the northwestern portion of Shark Slough. At the request of the NPS, the Corps between 1966 and 1968 built the L-67 extension, a 10-mile-long canal running south from the S-12D along what then was the eastern park boundary (figure 8-4, water control structures affecting the park). The L-67 was meant to separate the park from private land to the east and enhance water flows into the northeast Shark Slough.403

The east coast perimeter levee south of the Tamiami Trail was the L-31N; its primary purpose was to protect agricultural and residential areas in southern Dade Country from flooding (figure 8-1). Between the park’s eastern boundary (as it existed in the 1960s) and the L-31N lay an area of about 150,000 acres sometimes known as the East Everglades. Much of this acreage flooded seasonally. Although the planned location of the east coast perimeter levee was widely known, a few people in the 1960s built homes and plant nurseries west of the levee. The East Everglades area also formed the headwaters of Taylor Slough, which runs from near Royal Palm Hammock to Florida Bay. The Corps’ plan for south Dade County went through several changes before being implemented. As first conceived, the perimeter levee was to run south to the coastal area. This was soon changed in favor of a network of drainage canals (the C-111, etc.), meant to drain excess water to Florida Bay, Barnes Sound, Card Sound, and Biscayne Bay. The NPS objected to aspects of this plan because it would direct all the run-off to the east, depriving Taylor Slough of needed water. The Corps responded by modifying the project to include Canal L-31W. This canal jogged west from the L-31N and ran along the eastern boundary of the park, potentially allowing water to be routed into Taylor Slough. Moving the perimeter levee to the west also potentially freed up more land for agriculture. Two gated culverts, S-174 and S-175, were placed in the L-31W Canal. Later a pump, S-332, was constructed as an additional means of moving water. The Corps and the park also compromised on the route of Canal C-111, placing the last few miles on a NW/SE diagonal.

Figure 8-4 Water Control Features Affecting Everglades National Park
As originally designed and constructed, the L-31, the C-111, and related canals in southwest Dade had no surface water connection to the L-29 Canal along the southern boundary of WCA 3. The southern Dade canal system was originally meant as a drainage system only; it had no water storage function. As described below, later changes connected the parts of the system.

**Canal C-111 and Aerojet**

One of the six canals planned to drain southwest Dade County was the C-111, running seven miles from just south of Homestead to Barnes Sound (figure 8-4). In 1962, the Aerojet-General Corporation, a subsidiary of General Tire Corporation, purchased 25,000 acres and took options on another 50,000 acres southwest of Homestead. Aerojet was a leader in solid-fuel rocket engines and hoped to become an integral part of the National Aeronautics and Space Administration’s (NASA’s) effort to place a man on the moon. The company spent $5 million ($39 million in 2014 dollars) building a complex for researching, testing, manufacturing, and shipping rocket engines on its Dade County property. The tract was adjacent to the eastern boundary of the park, and Canal C-111 was planned to run through it. Canal C-111 was made large enough—28 feet wide and 9 feet deep—to accommodate barges carrying 25-foot-diameter rocket engines. This would allow the engines to be shipped down the C-111 to Barnes Sound and then all the way up the intracoastal waterway to the NASA launch site at Cape Canaveral. In 1967, Aerojet exercised one of its options and purchased 25,000 acres, bringing its total ownership to 50,000 acres.  

A facility one mile from the park that tested engines throwing plumes of smoke and particulate matter 1,000 feet into the air was naturally of concern to park managers. The effects of blasts on wildlife and possible air and water pollution were unpredictable, as were the effects on the water regime of such a deep canal. Superintendent Stanley Joseph attended the dedication of the Aerojet facility in May 1964, and the first test of a 260-inch diameter engine took place September 25, 1965. That test and a second test on February 23, 1966, apparently caused no harm on nearby properties. A third test of a more powerful engine on June 17, 1967, was a different story. Hydrochloric acid from the engine’s exhaust caused leaf spotting on avocados, limes, and mangos and damaged paint and chrome on automobiles. When NASA decided to use only liquid-fuel rockets, Aerojet tested no more large rockets and eventually stopped using the facility. Had NASA made a different decision, the Aerojet facility would

likely have been a serious problem for Everglades National Park. In 1980, the Trust for Public Land (TPL) purchased 17,820 acres from Aerojet for $17 million dollars and received the remaining 32,180 acres as a donation. The state purchased the 50,000-acre tract from TPL in 1983. It is now owned by the South Florida Water Management District and managed to support Everglades restoration objectives.\textsuperscript{405}

Salt water intrusion from Barnes Sound to the park via C-111 was another park concern. In constructing the canal, the Corps had built a temporary dam to carry U.S. 1 over the route of the canal. With C-111 nearing completion in spring 1967, the Corps announced its intention to remove the dam and replace it with a bridge. This move would have left no barrier to prevent salt water from flowing up the canal. Park managers and conservationists insisted that a gated barrier be installed near the canal’s outlet to prevent salt water intrusion, and secondarily to retain water that potentially could be diverted into Taylor Slough during times of high water. The Corps and the FCD balked at the cost of such a water-control structure. The National Audubon Society and some local farmers and fishermen brought a suit in federal court against the Corps in March 1967. After further study and discussions with the NPS, the Corps agreed to install a barrier, which was completed in December 1968. At first, this was an earthen dike. In times of high water, the Corps bulldozed the barrier to flush water to tide, then built it anew when the emergency was over. Later the Corps installed a gated culvert structure, known as S-197.\textsuperscript{406}

The Cape Sable Canals

A water issue unrelated to the C&SF Project arose in the southwest corner of the park. Settlers in the Cape Sable/Flamingo area in the 1910s and 1920s dug several canals in an attempt to drain the Cape Sable prairies for agriculture and stock raising. As related in chapter 1, these canals instead ruined the area for agriculture by saturating the land with salt water. Two of the canals, the Middle and East Cape Canals, connected Lake Ingraham with the ocean. The Homestead Canal, built in conjunction with the Ingraham Highway, extended to Lake Ingraham. The effect of building the canals and connecting inland waterways with the Gulf of Mexico was to allow salt water at times to flow all the way up the Homestead Canal to the vicinity of Royal Palm Hammock. Initially 16 feet wide, the canals at Cape Sable were gradually widened by tidal action.


The influx of seawater converted Lake Ingraham from a fresh-to-brackish regime to a decidedly marine environment. In addition, the action of tides via the canals led to considerable erosion of the canal banks. In the 1950s and 1960s, the park installed earthen dams in the Homestead and East Cape Sable Canals, but these failed. Repairs were made to both dams in 1984 and to the East Cape Sable Canal in 1991. Failures continued to occur, and in 1997, the park installed sheet-piling dams, which also failed. The park received $12 million in funding from the American Reinvestment and Recovery Act of 2009 to plug two of the canals, the East Cape Canal and the Homestead Canal. Following an engineering study and an environmental assessment, the project was completed in 2010/2011, but problems have already emerged with the new plugs.407

Controversy Over Water Deliveries to the National Park

Cooperation among the Corps, the FCD, and the NPS was slow to develop. In the early years, park managers were largely preoccupied with effectively patrolling and developing the new park for visitation. They lacked the time and the expertise needed to closely examine the evolving C&SF Project. A general sense of unease over how the project would affect the park prevailed within the Service. In August 1949, NPS Regional Director Thomas Allen pressed the Corps for more details on the C&SF Project, requesting that the NPS be given the opportunity to suggest changes to any engineering works before they were built. He also asked the Corps to undertake studies to determine how much water the park should receive to replicate both conditions existing in 1947 and conditions existing before any drainage had been accomplished in the Everglades.408 The question of who had the responsibility for calculating the park’s water requirements emerged as the first major area of conflict between the park and the Corps and its local partner, the FCD.

As early as June 1950, the Corps was informing the NPS:

Special investigations and studies related to the detailed determinations of requirements of local interests for water supply or other purposes . . . are not considered to be within the responsibilities or authorized functions of the Corps of Engineers. . . . Everglades National Park will compete with agricultural areas and urban centers for water supply.409


The Corps was not only declining to study the park’s water needs, but branding the park, set aside by Congress as important to the nation as a whole, a “local interest.” Regional Director Allen responded by repeating the Service’s view that the Corps had responsibility for determining the park’s water needs. He added that preliminary calculations indicated that the park’s minimal need was for 300,000 acre-feet of water annually. This figure came from a study of the park’s hydrology undertaken by FCD engineer Lamar Johnson. Johnson had long been curious about the park’s water needs and got permission from the FCD board to study the question on his own time. His May 1950 report noted that a lack of data from the era before drainage made it impossible to calculate historical water flow with any precision. Relying on descriptions of the region before drainage and more recent rainfall and evaporation data, Johnson produced some estimates. He estimated that before drainage, the area of the park received as sheet flow from north of the Tamiami Trail, “2,315,000 acre-feet in an average year; 10,744,000 acre-feet in a wet year; and negligible runoff . . . during a dry year.” He concluded that if the park could get an annual minimum of 300,000 acre-feet from the C&SF Project, the prior ecological balance in the park could be restored “at least to a reasonable degree.” He also recommended that, to get the maximum benefit from the water it did receive, the NPS erect a system of low dikes at six mile intervals within the park. The dikes would be gated, with gates opened or closed as needed to retain fresh water and block salt water intrusion. Johnson acknowledged that NPS officials did not favor artificial water control structures within national parks. The NPS regarded Johnson’s estimates of water requirements as preliminary, subject to revision following additional study.

In an exchange of letters, National Park Service Director Drury and National Audubon Society President John Baker indicated their unhappiness with aspects of Johnson’s report. The study gave the NPS its first estimate of park water needs, but it emphasized that the C&SF Project would be operated primarily for the benefit of agriculture and coastal residents. Drury noted that the erection of water-control structures within the park was contrary to Service policy and could not be considered. The director understood, however, that water deliveries to the park “will depend on developments and water uses outside the park by agencies over which we have no control.”

410 An acre-foot is a measure of volume equal to the amount of water needed to cover an acre of land to the depth of one foot.
411 Engineering Dept., C&SF FCD, “A Report on Water Resources of Everglades National Park, Florida,” May 22, 1950; Johnson, Beyond the Fourth Generation, 209. 300,000 acre-feet amounted to only about one-seventh of Johnson’s calculated average predrainage yearly flow; it is unclear why he believed such a small amount would be adequate.
and that “moral suasion” was the only tool he possessed in dealing with the Corps and the FCD.\textsuperscript{412}

Throughout the 1950s, park managers did what they could with very limited resources to better understand regional hydrology and the park’s water requirements. The USGS had maintained water gauging stations in the Everglades region since 1940. Beginning in the winter of 1952/1953, the NPS entered into a cooperative agreement with the Corps and the USGS for five additional stations within the park.\textsuperscript{413} Nonetheless, the park had difficulty freeing staff from other duties to maintain the stations and analyze data from them. In late 1957, Superintendent Beard lamented that the NPS could not give the Corps a more precise idea of its water needs. He observed, “as of now we can only parrot our old line about wanting more water, but not too much. Unless we can get into a position to give more definite answers within the next year or so we’re likely to lose out.” In its early years, the park had to rely on civil engineers and other experts from the NPS regional office or the Washington office to review and comment on Corps construction and operating plans. The park hired its first hydraulic engineer, Frank Nix, in 1963, giving it in-house expertise for the first time. The park’s early research efforts focused not on the region’s hydrology, but on fish populations in Florida Bay (see chapter 11). In 1957, NPS Region 1 suggested that “the problem of ground water flow from the north” was a high priority for research, but it was too late to reallocate money already committed to fisheries studies.\textsuperscript{414}

In 1958, the NPS hired Lamar Johnson, now an independent consultant, to make a new study of park water needs. His report largely repeated the conclusions and recommendations of his earlier 1950 report. Based on the 1958 study, Superintendent Warren Hamilton communicated an estimate of the park’s needs to the Corps’ Jacksonville office:

\begin{quote}
[I]t appears the optimum Park water requirements should be two or more million acre feet [annually] with at least 150 thousand acre feet per month coming into the Shark River slough area during the spring season.
\end{quote}

These requirements were stated tentatively, subject to future revisions. NPS efforts to estimate park water needs were hamstrung by a lack of research on the effects of the altered water regime on the ecological relationships within the park. As


\textsuperscript{413}The system of gauging stations continued to be expanded and modernized over the years.

described in chapter 11, NPS funding for scientific research was woefully inadequate throughout the 1960s.415

NPS concerns over the amount, location, and timing of water deliveries rose to the highest level of the Department of the Interior in 1961. Secretary Stewart L. Udall wrote Secretary of the Army Elvis J. Stahr Jr. requesting his assistance in concluding a formal agreement among the NPS, the Corps, and the FCD “to insure that future park [water] needs are reasonably assured.” Stahr responded that the Corps had no authority to guarantee a water supply to any user, and that the NPS should seek any desired guarantees from the FCD. An October 1961 meeting in Washington attended by NPS, Corps, and FCD officials brought the parties no closer to agreement. The Corps maintained its stance, and the FCD stated that it could not enter into an agreement with the NPS until it had a more comprehensive understanding of the water needs of both the park and coastal communities. The NPS then persuaded the Congress to request that the Corps conduct a survey and review of possible modifications to the C&SF Project “to provide for the supply, distribution, and conservation of water for or on the Everglades National Park, Florida.416 At the suggestion of the Corps, a coordinating committee was established to address water issues in South Florida and help guide the review study. This committee had field-level representatives from federal, state, and local agencies.417

**Drought Brings National Attention to Everglades National Park’s Water Issues**

Before the Corps could begin developing the scope of work for the requested study, a severe drought in South Florida brought national attention to the park’s water situation. Much of the Everglades region received only about half of normal rainfall in 1961. By spring 1962, park managers could maintain some water in the ponds along the Anhinga Trail only by pumping from an underground well. Staff pumped water into and dredged the ponds from time to time in subsequent years to maintain some wildlife habitat. These actions were only stopgaps and did not come close to


416 At the request of the FCD, the Senate committee passed a second resolution on June 5, 1963, directing that the study explore the possibility of erecting a barrier to retain fresh water in “the south-west area of the Everglades National Park.” The Corps and the FCD repeatedly proposed such barriers, but the NPS never agreed to them. Acting NPS Dir. to SOI, Apr. 7, 1964, NARA II, RG 48, DOI, CCF, box 206. The committee added a third resolution adopted Jan. 11, 1965, asking that the study address “water supply and water control for the Lake Okeechobee-Everglades agricultural area.”

replicating predrainage water levels. Park staff also placed explosives in the underlying limestone to blast out alligator holes that could collect water and shelter wildlife (figure 8-5, pumping from a well at the Anhinga Trail; figure 8-6, blasting a gator hole). See chapter 12 for more detail on the artificial water holes. Drought conditions persisted until 1966 and led to repeated accusations that the FCD and Corps were denying needed water to the park. A particular sore point was the fact that the gates in the S12 structures in L-29 along the park’s northern boundary remained shut, except for two brief periods, from 1963 into 1965. Then, in April 1965, the Corps permitted 70,000 acre-feet of water to be flushed via canals from Lake Okeechobee to the sea, ostensibly to lower the lake level in advance of hurricane season. The NPS protested bitterly; additionally, it was not happy with the slow pace of the Corps’ review study of the park’s water needs. The NPS also believed that the study process was putting more emphasis on adding engineering structures rather than operating the system to get more water to the park.418

Figure 8-5. Pumping from a well at the Anhinga Trail

With the Corps moving at a snail’s pace, the NPS relied on two studies to establish the park’s desired “interim supply” of water. Based on a 1961 NPS water resources division study and a 1963 USGS study, the park arrived at 315,000 acre-feet per year as a minimum water flow into the park.\textsuperscript{419} The NPS stressed that the figure was an interim, minimum water supply, subject to revision when additional data were available to establish “water needs for ecological maintenance of the park.” While the Corps pursued its review study, it and the FCD worked with the NPS on an interim plan to augment water supplies to the park. Protracted negotiations took place throughout most of 1965, and the plan went into operation in March 1966. The Corps and FCD agreed to pump excess water from Lake Okeechobee into the WCAs whenever it could, build or improve canals and pumps within WCA 3 to facilitate the southward flow of water toward the park, and enlarge and extend canals along the eastern park boundary, which potentially could channel more water to the headwaters of Taylor Slough. All parties understood that these were interim measures only.\textsuperscript{420}

In the meantime, an avalanche of negative publicity kept up the pressure on the Corps and the FCD.\textsuperscript{421} Some observers noted that Florida governors consistently placed agricultural industry representatives on the district’s board. \textit{St. Petersburg Times} outdoors columnist Red Marston pointedly asked, "Who speaks for the national park on the five-man FCD governing board?" High-water conditions in WCA 3 in spring and summer 1966 led to the widespread drowning of deer, drawing protests from

\textsuperscript{419} The Tamiami Trail originally had open culverts at one-mile intervals that allowed some water to flow from north to south, although not as much as flowed before the road was built.


sportsmen’s groups and animal lovers. By contrast, 1967 was a year of low water, and
drought in the park resulted in more bad press. Perhaps the most influential piece to
appear was by noted author and conservationist Wallace Stegner, “Last Chance for the
Everglades,” which ran in the May 6, 1967 issue of Saturday Review.422

The Corps shared its draft review study on South Florida water needs and its
recommended modifications of the C&SF Project with the NPS and the state in July
1967. After comments from Interior, the state, and the public, the final draft appeared
in May 1968. In it, the Corps accepted as a goal the delivery of 315,000 acre-feet of
water per year to the park, but declined to provide a guarantee of this minimum. By
this point, the NPS had broken down the overall minimum figure as follows:

• 260,000 acre-feet to Shark Slough via the S-12 structures;
• 38,000 acre-feet to eastern Shark Slough and the headwaters of Taylor Slough;
• 17,000 acre-feet to Taylor Slough in the panhandle area (where the park boundary jogs east to U.S. 1).

Delivery of the last two amounts could not be accomplished until the Corps
had built new structures in south Dade County. Additionally, the Service established a
monthly schedule for water releases, outlined in the following table.423

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<td>September</td>
<td>47,000</td>
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<td>October</td>
<td>81,000</td>
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<td>November</td>
<td>71,000</td>
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<tr>
<td>December</td>
<td>39,000</td>
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422 Godfrey, 83; Red Marston, “Mother Nature or Engineers’ Blame in the ‘Glades,” St. Peters-
423 NPS Deputy Dir. to Brig. Gen. H. G. Woodbury Jr., Director of Civil Works, DOA, Oct. 20,
1967, EVER 58222.
To meet the projected needs of the park and all other water users in South Florida through the year 2000, the Corps proposed the following:

- Increasing the water level in Lake Okeechobee by four feet, aiming for a range of 19.5 to 21.5 feet.
- Pumping excess floodwaters to the WCAs before releasing them to the sea.
- Backpumping excess water in canals and from areas of Martin and St. Lucie Counties into Lake Okeechobee.
- Building additional canals in South Dade County that potentially could supply water to Taylor Slough.424

The basic thrust was to increase the volume of water that could be stored and avoid wasting it. The NPS continued to press the Corps for a written water guarantee for the park. In June 1968 the acting chief of engineers provided it, writing Secretary of the Interior Udall, “the Chief of Engineers will insure the project is regulated to deliver the water requirements of the Everglades National Park as set forth in the report.” Congress then authorized the modifications embodied in the review study as part of the River & Harbor Act of 1968. The projected cost was $70 million, with $55 million as the federal share. State officials, however, were not pleased with the Corps’ water guarantee to the park, and the Corps began to back away from what the NPS regarded as a firm commitment.425

The NPS, the Corps, and state officials continued discussions in 1969 and 1970 on the park’s water needs. In the summer of 1969, the FCD and the NPS agreed to an interim water delivery schedule. The schedule called for the FCD to deliver the park’s requested minimum of 260,000 acre-feet from WCA 3 to the northwest Shark River Slough under normal operating circumstances. In times of drought, however, the Corps and FCD insisted that the park would have to compete with other users. At a February 1970 meeting, the parties agreed to implement the interim schedule immediately. Further, it was decided that the park’s requested minimum deliveries to Taylor Slough would begin once the Corps had increased the capacity of canals in south Dade County. The Corps agreed to revisit the question of water delivery to the park when the level of Lake Okeechobee had been raised. It also committed to beginning a restudy of the C&SF Project and South Florida water needs in 1980. The Corps still declined to give a minimum guarantee to the park that would give its water needs priority in time of drought.426

As described below in Chapter 9, public concern for the environment had increased dramatically by the late 1960s, and some national lawmakers were determined to obtain a guaranteed water supply for Everglades National Park. When it became clear that the Corps, the state, and the NPS could not agree on this final point, Wisconsin Senator Gaylord Nelson and Maine Senator Edmund Muskie placed the water guarantee into the 1970 act appropriating funds for the C&SF Project. Congressman Dante Fascell led the effort in the House. The law provided that, as soon as the project modifications had been completed, the park would annually receive the lesser of 315,000 acre-feet of water or 16.5 percent of total water deliveries from the project. The act also incorporated the terms of the February 1970 agreement, placing the force of law behind the Corps promise to commence a restudy of the entire C&SF Project in 1980.

The congressionally mandated minimum schedule of water deliveries to the park remained in operation from 1970 through 1983. As detailed in the following chapter, the experience gained in the 1970s and 1980s revealed the inadequacies of that schedule. This then led to a new program of experimental water releases after 1983.

427 The Corps and the FCD had the tools in place to deliver the 260,000 acre-feet earmarked for the Northwest Shark Slough (via the S-12 structures). The 55,000 acre-feet assigned to the Northeast Shark Slough and Taylor Slough could not be provided until the requisite structural modifications were finished.

428 River Basin Monetary Authorization and Miscellaneous Civil Works Amendments Act, June 19, 1970 (P.L. 91-282, 84 Stat. 310). The most detailed account of the negotiations and controversies that led to the water guarantee in the 1970 act is in Godfrey, 86-90. As Grunwald observes in The Swamp, both Nelson Blake and Luther Carter wrote that the water guarantee passed over Senator Holland’s objections. Grunwald convincingly shows that nothing concerning Florida passed over Holland’s objections in this period and that the senator gave his tacit approval to the guarantee, Grunwald, endnote to page 253.

Several Florida environmental controversies that unfolded in the 1960s and 1970s profoundly affected the climate in which Everglades National Park operated. Some of these struggles played out in nearby areas like the Big Cypress Swamp, while others took place some distance away in North Florida. The cumulative effect of these controversies was to raise environmental awareness in the state and add substantially to the number of people who cared about and advocated for Everglades National Park. This interest in the environment was part of a larger national trend that politicians were beginning to respond to. Some of this broader background will be briefly considered before the narrative returns to Everglades National Park’s water issues.

Historians agree that environmentalism became a force to be reckoned with in the United States in the 1960s. The post-World-War-II economic boom brought with it a host of unforeseen consequences, like air and water pollution and the widespread conversion of open space to factories, roads, and residential subdivisions. Concern over the degradation of the environment moved from scientific and academic circles to the general public in the 1960s. Many credit Rachel Carson’s 1962 best-seller *Silent Spring* with introducing the concept of environmentalism to a broad public. Carson’s book focused on the devastating effects on bird reproduction of the use of persistent pesticides like DDT (dichloro-diphenyl-trichloroethane), but it had a broader message. In forceful and eloquent prose, Carson called for a rethinking of the whole concept of human control of nature. Throughout the 1960s, more and more attention was given to problems of pollution and uncontrolled growth. Politicians began to take notice, leading to landmark legislation like the national clean air and water acts of the 1960s and the National Environmental Policy Act of 1969.429

The Cross-Florida Barge Canal

The Cross-Florida Barge Canal was the first issue that raised substantial environmental concerns for many Floridians. A canal connecting the Gulf of Mexico and the

Atlantic Ocean had long been a dream of North Florida business interests. The Corps began work on a 230-mile sea-level canal in the 1930s. The route started at Yankee-town on the Gulf (70 miles north of Tampa) and followed the Withlacoochee River to near Dunnelton. From there a canal was to be dug, connecting with the Oklawaha River southeast of Ocala. The Oklawaha drains into the St. Johns River, which reaches the Atlantic east of Jacksonville. Opposition from railroad interests and the advent of World War II stopped the project after five miles of canal had been excavated. In the 1960s, the project was revived as a barge canal with locks rather than a sea-level ship canal. Presidents Kennedy and Johnson and Florida Governor Farris Bryant (served 1961-1965) strongly supported the new project, and work began in early 1964.430

Had the canal been completed it would have destroyed the natural quality of the final 50 miles of the Oklawaha River, which in 1962 still retained a “wild, jungle-like character.”431 A movement to save the Oklawaha began in Gainesville and went statewide. Participants in this campaign gained considerable experience and formed informal networks. These would be of great benefit in future disputes over water policy in Florida, including those that directly affected Everglades National Park. University of Florida zoologist Archie Carr432 and his wife Marjorie, along with the Alachua and Florida Audubon Societies, were the early leaders in the battle to save the Oklawaha. As the struggle dragged on, they and other Florida environmentalists in July 1969 formed the Florida Defenders of the Environment (FDE). Working with a national organization, the Environmental Defense Fund, the FDE brought suit against the Corps and mobilized hundreds of Floridians to attend hearings and lobby politicians. By 1970, national attention was being focused on the proposed canal, and in January 1971, President Richard M. Nixon ordered a halt to work on the project. Further litigation ensued before the project was finally abandoned in 1977. Long before the project died, a section of the Oklawaha was already impounded by dams. Nonetheless, by saving a portion of the river, Florida environmentalists had won an important victory.433

Preserving Biscayne Bay

Plans in the 1960s for development in and along Biscayne Bay, just east of Everglades National Park, provoked more battles and spurred the growth of an environmental movement in Dade County. This also resulted in the creation of a new park, Biscayne National Park. In 1960, about a dozen residents of a string of 33 keys

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430 Carter, 269-278; Godfrey, 102. Chapter 5 (pp. 265-312) of Luther Carter’s The Florida Experience is a detailed account of the barge canal story.
431 Carter, 267.
433 Godfrey, 105-106; Carter, 278-288.
separating Biscayne Bay from the Atlantic Ocean incorporated the area as the City of Islandia (figure 9-1, Seadade and Islandia). Real estate interests were behind the incorporation. The total acreage of the keys was about 4,000; seven-and-one-half-mile-long Elliott Key was the largest. Developers’ plans for Islandia included resort homes, a marina, and a causeway across the bay from the mainland. In 1962, billionaire shipping tycoon Daniel K. Ludwig announced that he had purchased 2,200 acres on Biscayne Bay east of Homestead. He planned a seaport to be known as Seadade, an oil refinery with a 50,000-barrel-per-day capacity, and a shipping channel dredged across the bay from the mainland to the Atlantic.434

Although supported at first by the Metro Dade County Commission, the Greater Miami Chamber of Commerce, and the Miami Herald, the Seadade project soon encountered serious opposition. Businesses and residents in Miami Beach, some scientists at the University of Miami, and concerned citizens feared that the operations of a refinery and shipping would inevitably foul Biscayne Bay and ruin nearby beaches. A Pan American Airways employee, Lloyd Miller, took the lead in founding a citizens’ group, the Safe Progress Association (SPA). Miller had organized the Mangrove Chapter of the Izaak Walton League in South Florida and was able to draw on the resources of the local chapter and the league’s national office. Another cofounder of the SPA was a local conservationist, James Redford. His wife, author Polly Redford, was a mainstay of the campaign against Seadade and developed into a leading South Florida environmental activist. The SPA mounted a sophisticated public relations and lobbying campaign to preserve Biscayne Bay. Managers at Everglades National Park were also concerned and attended meetings and hearings on the Seadade plans. The ecology of Biscayne Bay was poorly understood, and the U.S. Fish & Wildlife Service (FWS) assigned a biologist from its Vero Beach office, Arthur Marshall, to lead a team on a study of the bay. Marshall also advised the Mangrove Chapter of the Izaak Walton League, which played a key role in the fight to preserve the bay. The FWS report awakened many to the unique attributes of the bay, among them its coral reefs, turtle grass stands, and tropical hardwoods on the keys. The report concluded that they were nationally significant.435

The SPA’s Lloyd Miller is said to have been the first to propose a unit of the national park system in Biscayne Bay. Supporters believed that the establishment of an NPS unit would prevent both the Seadade and Islandia developments and preserve natural values. The idea gradually gained momentum. Secretary of the Interior Udall made a personal inspection of the area and gave his support. Crucially, Representative

Figure 9-1 Seadade and Islandia
Dante Fascell, representing much of Dade County, became an ardent and tireless supporter. Fascell involved Joe Browder, then southeastern representative of the National Audubon Society (NAS), in drafting and promoting legislation to establish Biscayne National Monument. Congress authorized Biscayne National Monument in October 1968, and SOI Walter J. Hickel declared it established on June 20, 1970. These actions preserved from development 4,000 acres of keys and more than 90,000 acres of water in the bay and the Atlantic Ocean. Public Law 96-287, enacted June 28, 1980, gave the monument national park status as Biscayne National Park. The campaign to preserve Biscayne Bay firmly established an environmental constituency in Dade County. Prominent actors in the campaign, Art Marshall, Polly and James Redford, and Joe Browder, would play important roles in later campaigns to protect the Big Cypress Swamp and repair the Everglades ecosystem.

**A Jetport Proposed for the Big Cypress Swamp**

A late 1960s controversy over a plan to build a huge jetport in the Big Cypress Swamp drew national attention to the fragile ecological situation in the Everglades and brought Marjory Stoneman Douglas forward as the Everglades’ most visible and honored defender. As Stoneman’s biographer Jack E. Davis acknowledges, prior to 1969, “the Everglades had been little more than a topic in her writing.” From then until Douglas’s death in 1998 at the age of 108, preservation of the Everglades would be her number one cause, for which she spoke and wrote tirelessly. The jetport also would give rise to a new unit of the National Park System, the Big Cypress National Preserve. The creation of the preserve would protect acreage that Ernest Coe had always insisted needed to be part of Everglades National Park, but had been dropped in the political compromises of the 1940s (see chapter 4 above).

In the mid-1960s, the Dade County Port Authority (PA) began searching for a new airport site both for pilot training and to supplement Miami International Airport. Miami International had become a popular site for training flights, and it was expected to reach its capacity for commercial flights before 1980. By April 1966, the

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437 This effort is often styled a restoration of the Everglades, and the plan adopted by Congress in 2000 is known as the Comprehensive Everglades Restoration Plan (CERP). Most scientists agree, though, that the Everglades cannot be restored, in the sense of returning it to an original or unimpaired condition.

PA had settled on a site in the southeastern corner of the Big Cypress Swamp, west of WCA 3 and north of Everglades National Park (figure 9-2, location of proposed jetport). At one point, the PA considered a site south of the Tamiami Trail adjacent to Everglades National Park. The Service managed to steer the authority away from this location, and initially expressed relief when the authority settled on a 39-square-mile (24,960-acre) tract north of the trail and six miles from the park boundary. The NPS had some concerns about aircraft noise disturbing wildlife and visitors, but did not in 1967 oppose the location, asking only for “appropriate consideration” of the park’s views in planning the airport. About two-thirds of the site lay in Collier County, and Dade County authorities engaged in protracted negotiations to obtain authority to use the power of eminent domain in Collier. The PA began quietly buying up land sometime in 1967. In June 1968, agreement was at last reached with Collier County, and a groundbreaking ceremony for the jetport was held September 18.439

The PA’s invitation to the groundbreaking referred to the facility as “THE WORLD’S FINEST ALL-NEW JETPORT [capitals in original].” Dade County planned to plunge headlong into the jet age, dreaming that as much as half of the international flights from the U.S. East Coast ultimately would originate in South Florida. The plan was to build four to six runways, two as long as 30,000 feet. The site was 50 miles from the city of Miami, but the PA intended that a rapid-transit line and the southern segment of Interstate 75 (I-75), then in the planning stages, would connect the jetport with Miami. Dade County authorities confidently predicted that a large urban area would develop around the jetport.440

Only belatedly did NPS managers awaken to the impact of the proposed jetport on water quality and supply for Everglades National Park. It was the chair of the FCD’s governing board, Robert W. Padrick, who alerted the NPS and conservation leaders to the potential consequences of the jetport. Feeling that the FCD had been misled about the PA’s intention to have I-75 routed through WCA 3, which was managed by the state as a wildlife refuge, Padrick invited more than a dozen representatives of federal and state agencies and conservation organizations to the board’s December 1968 meeting.441 In the words of Luther Carter, “what before had been misgivings about the jetport began to harden into opposition” at this meeting. The next month,


440 Dade County Port Authority, Invitation to Ground-breaking, Sep. 1968, EVER 22965; Carter, 189.

441 Attendees included NPS Attorney Rodger W. Pegues, NPS Water Resource Specialist Manuel Morris, Art Marshall of FWS, Nathaniel Reed from the governor’s office, Joe Browder of NAS, Gary Soucie, southeastern representative of the Sierra Club, and representatives from the Corps, the Florida Department of Natural Resources, and the Florida Game and Fresh Water Fish Commission. Carter, 195.
Figure 9-2 Site of Jetport
one attendee, Joe Browder, wrote to Governor Claude Kirk’s environmental specialist Nathaniel Reed that “we are all in big trouble if the Big Cypress Jetport is developed.” NPS and FWS employees were prohibited from lobbying on a political question like the jetport, but they eventually entered into an informal alliance with conservationists, sharing information and planning strategy to stop the jetport. The opposition became even stronger when, at a February 1969 public hearing, it became obvious that the PA had made no serious inquiry into the environmental impacts of the jetport.442

Although state authorities at this point seemed to believe that the jetport was inevitable, opposition among conservation organizations and within the NPS continued to mount. Everglades Superintendent John C. Raftery stated that the jetport would “break up our last natural source of water” and introduce pollutants that would “drastically alter the park’s ecology.”443 In April 1969, the NAS and the National Parks Association spearheaded the formation of the Everglades Coalition. A key player in the coalition’s emergence was Frank Masland Jr., a Pennsylvania carpet manufacturer and long-time member of the NPS Advisory Board. Masland made some phone calls and arranged a meeting in New York with Anthony Wayne Smith of the National Parks Association. The result was the formation of the Everglades Coalition with Smith as chair and NAS’s Joe Browder as coordinator.444 The Everglades Coalition was a departure for the environmental/conservation community, which in previous battles had used only informal coalition. In its original form, the coalition consisted of 21 conservation-oriented organizations and two large industrial unions: the United Auto workers and the Steel Workers.445 Coalition members learned that the Department of Transportation (DOT) had not investigated the effects on wildlife of routing I-75 through WCA 3, seemingly in violation of the 1966 U.S. Transportation Act. Using this as a lever, the coalition wrote to Secretary of Transportation (SOT) John Volpe asking that a new location for the jetport be found.446

Confronted by growing opposition to the jetport and a spate of negative publicity in the national press, Secretary of the Interior Hickel and SOT Volpe agreed in June 1969 to order a special study on the environmental impact of the jetport. Fearing

442 Arthur R. Marshall to Nathaniel Reed, Jan. 29, 1969, EVER 22965; Carter, 195-196. As described below in chapter 11, Reed was responsible for establishing a science center at Everglades National Park. He has continued his commitment to the Everglades ecosystem, serving on the board of the Everglades Foundation at this writing.
443 “Battle on to Save Park,” St. Petersburg Times, May 1, 1969.
446 Carter, 196-197; Godfrey, 112-113.
they had been too hasty in approving the jetport, Governor Kirk and Nathaniel Reed supported the study. If it ended up with a negative verdict on the site, the study would give them cover if they were forced to backtrack from their initial acquiescence in the jetport site. Charged with picking a lead investigator, Undersecretary of the Interior Russell E. Train chose Dr. Luna Leopold, a highly respected hydrologist with the USGS and son of land-use-ethic pioneer Aldo Leopold. Luna Leopold insisted on two conditions: that he alone choose his collaborators and that the final report represent the team’s findings, not those of the two departments. Leopold selected Arthur Marshall as Florida coordinator for the study. The report was sponsored by the two departments, but DOT’s input came in too late to be incorporated in the final report, which was released in September 1969, with only the DOI on the title page.447

What came to be known as the “Jetport Report” dealt a devastating blow to backers of the jetport (figure 9-3, Luna Leopold Report on the Jetport).448 The report reinforced the point that the park was dependent on sheet water flow from the Big Cypress Swamp, and that a jetport and all that came with it would interfere with that flow. The authors fully understood that the potential impact was not from the jetport alone, but from all the development that would surround it. The report opened with this statement:

Development of the proposed jetport and its attendant facilities will lead to land drainage and development for agriculture, industry, housing, transportation, and services in the Big Cypress Swamp which will inexorably destroy the South Florida ecosystem and thus the Everglades National Park.

Without offering suggestions for an alternate site, the report concluded that the development of even a training airport at the Big Cypress location would bring attendant development leading to “ecosystem destruction.” A report sponsored by the National Academy of Sciences, released a few days later, reinforced the Jetport Report’s conclusions and proposed that all of the Big Cypress Swamp be made a water conservation area.449

The jetport fight also started a new phase in Marjory Stoneman Douglas’s life. In an oft-told story, an Audubon Society colleague of Joe Browder’s, Judy Wilson, ran into the author one night in a convenience store in Coconut Grove. The two were

Figure 9-3. Luna Leopold report on the Jetport
friends and got into a conversation that touched on what Douglas was doing for the Everglades. Pressed about what she had done lately (i.e., since 1947’s *The Everglades: River of Grass*), Douglas recalled that she “casually mumbled some platitude like ‘I’ll do whatever I can’” Realizing the value of an ally like Douglas, Joe Browder began to court her. At Douglas’s request, he gave her a tour of the scarred jetport site, where training flights were about to begin (figure 9-4, Jetport runway). On the way back, the two discussed the possibility of Douglas starting a new kind of organization. By November 1969, the Friends of the Everglades was born, with Douglas as president. She wanted the broadest possible membership, so set yearly dues at one dollar. Membership grew as Douglas and other members traveled statewide to warn of the harm presented by the jetport. She later said, “I’ll talk about the Everglades at the drop of a hat.” As Michael Grunwald observed, “she knew how to assert her authority as the grandmother of the Glades.”

The controversy over the jetport continued through the fall and winter of 1969. Articles in *Audubon, National Parks Magazine, Look, Life,* and the *New York Times* kept the pressure on government officials. On January 15, 1970, the DOT and DOI, with the blessing of the Nixon White House and Governor Kirk, announced that a new site, outside of the Big Cypress, would be sought for the jetport. In what became known as the “Jetport Pact,” the state and federal governments and the PA agreed to close down the Big Cypress training airport once a new site was put in operation. State and federal agencies, as well as conservation organizations, would be involved in the effort to find a new airport site, and the regional impacts of the decision would be thoroughly considered. The pact also included a commitment by Interior and Transportation to further investigate the regional environment. This led to the South Florida Environmental Project, an interagency effort that produced multiple scientific studies (see chapter 11). The Jetport Pact was renewed three times, but a suitable site was never identified. In the meantime, improvements at Miami International Airport greatly reduced the need for a new facility. As of this writing, the Dade-Collier Training and Transition Airport remains in operation in the Big Cypress, providing a precision instrument landing and training facility for commercial and military pilots. No aircraft are based at the airport, which handles 175,000 operations annually. Only 900 acres

450 Douglas, *Voice of the River,* 225, 230; Davis, *Everglades Providence,* 472-478; Grunwald, 258. Douglas’s opposition to the jetport at times led her to make ill-considered claims. She wrote that the jetport would attract a “surrounding sprawl of industrial and residential slums.” The clear implication was that anywhere that baggage handlers and car-rental clerks lived would have to be a slum. Marjory Stoneman Douglas, “The Forgotten Man Who Saved the Everglades,” *Audubon* (Sep. 1971), 96.

Figure 9-4. Runway at the Jetport site
of the PAs 24,960 have been developed, with the remainder managed by the Florida Game and Freshwater Fish Commission.452

**Big Cypress National Preserve**

The jetport controversy demonstrated that a major portion of the wetlands of South Florida lacked adequate protection. A few months after the Jetport Pact was announced, NPS Director George Hartzog wrote SOI Hickel that “if we are to meet our responsibilities for preserving the environmental values in Big Cypress Swamp . . . and protect the environment and ecosystem of Everglades National Park, it is necessary to protect and preserve portions or all of Big Cypress Swamp.” Hartzog attached reports that outlined a range of options for protecting the Big Cypress, including federal purchase (figure 9-5, In the Big Cypress Swamp). An Everglades Jetport Advisory Board established by Rogers C. B. Morton (SOI as of Jan 29, 1971) weighed in with its recommendations in April 1971. The NPS much preferred that the state protect and administer the Big Cypress; there was no enthusiasm for making it a unit of the National Park System. The Nixon Administration, to the surprise of many, supported the idea of a federal preserve in the swamp. This decision was political; Nixon wanted to burnish his credentials as an environmentalist and take an issue away from Senator Henry Jackson, considered his likely Democratic opponent in the 1972 election. The Big Cypress National Preserve was authorized by legislation passed in October 1974. In recognition of long-standing uses of the area, the law allowed hunting, off-road vehicle use, and oil and gas exploration to continue in the preserve, subject to regulations and permitting requirements. The law also granted to members of the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida the right to continue their “usual and customary use and occupancy,” again subject to appropriate regulation. The Everglades superintendent had administrative responsibility for Big Cypress National Preserve until 1986.453 The establishment of the preserve helped to protect the watershed of the Gulf Coast portion of Everglades National Park. It was far from a complete solution to the park’s water problems.


South Florida’s Water Problems Increase and a More Holistic Approach Emerges

The controversies over the Cross-Florida Barge Canal, Seadade, and the jetport led to a significant increase in environmental awareness in South Florida by the early 1970s. The area continued its rapid growth. Between 1960 and 1970, the combined population of Dade, Broward, and Palm Beach Counties more than doubled, going from 1.05 million to 2.2 million. By 1980, it had grown another 50 percent, to 3.2 million. Planting, mostly of sugar cane, in the Everglades Agricultural Area also grew substantially. These trends put increasing pressure on the water supplies shared by all users in South Florida, including Everglades National Park. Signs of environmental deterioration also were increasingly visible throughout the region: in Lake Okeechobee, the water conservation areas, Everglades National Park, and Florida Bay. Reuben Askew was inaugurated to the first of two terms as governor of Florida in January 1971. Concerned over the environmental situation in the state, he convened a three-day Governor’s Conference on Water Resources in Miami Beach in September 1971. The conference gathered Florida’s top experts on water management, including representatives from the NPS, FWS, USGS, Florida Game and Fresh Water Fish Commission, and the sugar industry. Key participants were Art Marshall, Florida Wildlife

454 Marshall by this point was with the University of Miami.
Federation president John Jones, and state senator Daniel Robert “Bob” Graham. Art Marshall was one of the principal authors of the recommendations coming out of the conference. These in turn formed the basis for legislation presented the following year to the state legislature.455

The 1972 legislature passed four measures with implications for water management and the future of Everglades National Park:

- Environmental Land and Water Act
- Water Resources Act
- Land Conservation Act
- Florida Comprehensive Planning Act

The Water Resources Act established five new water management districts to replace the existing flood control districts. The change-over became effective in 1977, when the South Florida Water Management District (SFWMD) took over the functions of the Central and Southern Florida Flood Control District and the Okeechobee Flood Control District.456 Of critical importance, the boundaries of the new water management districts were based on watersheds. Accordingly, the SFWMD included the Kissimmee River basin and the Gulf Coast counties up to Charlotte Harbor as well as the Everglades basin and east coast areas (see figure 8-1). The water management districts also had a broader mandate: they had responsibility for maintaining water supply and water quality, not merely providing flood protection. The Land Conservation Act authorized the issuance of $200 million in bonds, the proceeds to be used to purchase environmentally sensitive properties, thus preserving them from development. This was the beginning an ongoing effort by the state to protect the environment through major land purchases. All in all, the 1972 legislation was a turning point for Florida. The state’s political leadership for the first time was attempting to coordinate policy and set clear goals in the areas of growth management, land and water management, and environmental protection.457

The change in political direction came as scientists studying Everglades problems were adopting a more holistic conception of the larger South Florida ecosystem and thinking about ways its functioning could be improved. More and more, scientists


456 The other districts were the Northwest Florida Water Management District, the Suwannee River Water Management District, the St. Johns River Water Management District, and the Southwest Florida Water Management District. At this writing, the SFWMD has nine board members, appointed by the governor to four-year terms.

realized that the C&SF Project had produced a disconnected or disarticulated ecosystem. Art Marshall was at the center of this movement. In the 1970s, Marshall developed an overall conceptual plan for the repair of the Everglades ecosystem that aimed to enhance its natural functions. Florida Wildlife Federation president John Jones was apparently the first to dub this the “Marshall Plan,” deliberately invoking parallels with the plan of massive assistance to Europe developed by U.S. Secretary of State George Marshall after World War II. Art Marshall’s goal was to reverse to the extent feasible the compartmentalization of the Everglades ecosystem that had been accomplished by the C&SF Project and restore clean sheet flow. Dr. William B. “Bill” Robertson, research biologist at Everglades National Park from 1956 to 1997, shared the view that the C&SF project had “destructively fragmented the basic Everglades ecosystem.” Art Marshall and other scientists fine-tuned the details of the Marshall Plan throughout the 1970s. The plan’s essential features included:

- Improving water quality in the lakes and streams of the Kissimmee River watershed.
- Dechannelizing the Kissimmee River (Canal C-38).
- Cleaning up the water flowing into Lake Okeechobee from the EAA, the Kissimmee basin, and other sources.
- Setting the target level for Lake Okeechobee at 15.5 feet to 17.5 feet, rather than raising it as the Corps proposed.
- Restoring sheet flow from WCA 3 to the Big Cypress National Preserve on the west and Everglades National Park on the south.
- Filling in some of the canals in the East Everglades area (the area between the park’s eastern boundary and the perimeter canal).
- Legislatively establishing effective limits on urban and agricultural development.

Marshall focused most of his attention on the upper Everglades, but improvements in water quality and restored sheet flow would also benefit Everglades National Park. In the 1980s, state officials developed a stronger interest in protecting and repairing the Everglades ecosystem, while the federal government was less of a player. Bob Graham was inaugurated to the first of two terms as governor in January 1979. At

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458 Garald Parker, who did pioneering work on Everglades hydrology in the 1940s, wrote Art Marshall in 1973, “The only ‘out’ I see, and one that will not be politically practical, is to buy out the farmers, close up the big drainage-canal outlets, and let nature take over restoration of this misused land.” Grunwald, 254, citing Marjory Stoneman Douglas papers.

459 John Jones, interview by Brian Gridley, May 23, 2001, University of Florida Proctor Oral History Center. Officially known as the European Recovery Program, the Marshall Plan was in effect from 1948 through 1951 and is given much credit for the revival of European economies in the 1950s and 1960s.

first, Graham did not devote much attention to the state’s environmental issues. Two years into his term, things changed. Ronald Reagan, who became president in January 1981, was convinced that environmental regulation was a drag on the U.S. economy and opposed expanding the acreage owned by the federal government. One month after the inauguration, a 10-page article on Florida’s environmental woes appeared in *Sports Illustrated.* This piece, which ran in the very popular swimsuit issue, included sharp criticism of the governor.\(^{461}\) Stung by the article and aware that little was to be expected from the national government as long as Reagan held office, Governor Graham soon made the repair of the Everglades a top priority. After consulting with a number of scientists and conservationists, in August 1983, he unveiled a major initiative: “Save Our Everglades.”\(^{462}\)

The goal of Save Our Everglades was to have “the Everglades of the year 2000... look more like the Everglades of the year 1900 than the Everglades of today.” What Graham announced was more a set of objectives than a detailed plan. Key elements included:

- Dechannelizing the Kissimmee River and restoring its marshes.
- Re-engineering the Tamiami Trail and Alligator Alley (Interstate 75) highways to allow more water to flow beneath them into the lower Everglades.
- Supporting Everglades National Park in its efforts to get the Corps to revise water delivery schemes to benefit the park.
- Converting two mostly state-owned tracts within the EAA—the Holey Land and the Rottenberg Tracts—to wetlands.
- Protecting the deer herd in WCA 3.
- Buying land in the Big Cypress Swamp and Fakahatchee Strand to protect areas that served as habitat for the Florida panther.

A number of these goals were taken directly from the Marshall Plan. Florida environmentalists greeted Graham’s initiative with enthusiasm. It was well understood, however, that little of the program could be accomplished without federal assistance. Graham also took steps to revive the Everglades Coalition, which had become inactive after the jetport fight died down. Graham invited representatives from the leading conservation and environmental organizations to a March 1985 meeting. The Everglades Coalition was then revitalized with the National Parks Association taking on a coordinating role. The coalition’s annual meetings, the first of which was held in January 1986, became important forums for the interchange of ideas among scientists,

\(^{461}\) Robert H. Boyle and Rose Mary Mechem, “There’s Trouble in Paradise,” *Sports Illustrated* 54 (Feb. 9, 1981). The article was instigated by Florida Wildlife Federation president John Jones and included quotes from Marjory Stoneman Douglas, Art Marshall, and Nathaniel Reed.

\(^{462}\) Godfrey, 163-180.
politicians, and federal and state land managers. They also served to keep Everglades issues in the public eye.463

In November 1986, Bob Graham was elected to the U.S. Senate, where he continued his efforts to repair the Everglades ecosystem. His successor as governor, Republican Bob Martinez, maintained some of Graham’s environmental initiatives, but his appointments to the board of trustees of the SFWMD were more pro-business than Graham’s. Expanding on earlier efforts, Martinez engineered the 1990 passage of Preservation 2000, which added $300 million yearly to the funds available for the purchase of environmentally sensitive lands throughout Florida. Preservation 2000 and its successor program, Florida Forever, are among the most aggressive and successful land acquisition programs adopted by any state. By 2009, the programs had purchased more than one million acres, but very little of them are directly related to Everglades restoration.464

Water Imbalances and Attempted Fixes

While the social and political landscape of Florida evolved in the 1970s and 1980s, managers at Everglades National Park continued their efforts to understand the connections between surface water deliveries and the functioning of the park’s natural systems. Research funds remained limited until Nathaniel Reed engineered the creation of the South Florida Research Center in late 1976 (see chapter 11). In spring 1979, Superintendent John Good acknowledged that “we really don’t know a lot about the effect of water management on the park.”465 Throughout the 1970s, the FCD/SFWMD operated under the interim schedule of minimum monthly deliveries of water to the park agreed to in July 1969 and reaffirmed in the 1970 law (see chapter 8). The schedule specified that 84 percent of these deliveries would go into the western portion of Shark Slough, via the S-12 structures. Except in the drought year of 1971, those minimums were achieved. The smaller deliveries to the eastern Shark Slough and Taylor Slough could not be made for two reasons: the lack of needed water control structures and the danger of flooding private property in the East Everglades. In addition to the scheduled deliveries, the Corps at times released large pulses of water via the S-12s after heavy rains or in advance of hurricane season, to meet its flood control responsibilities. It was increasingly apparent that the operations of the C&SF Project

left the eastern areas of the park too dry and frequently provided too much water to the western areas.  

As described in chapter 8, Congress in 1968 had authorized the Corps to build the South Dade Conveyance System. Some features in the plan were abandoned, but the remainder were completed by the 1980s. New construction included adding large water gates along the L-29 Canal (S-333 and S-334), widening the L-31N Canal, and installing gates and pumping stations in the L-31W and C-111 Canals along the park’s eastern border (figure 8-4). The structural modifications connected the canals in south Dade with WCA 3 for the first time. The changes provided the potential to move considerably more water from WCA 3 into the L-29 Canal. From there, water could be released through culverts under the Tamiami Trail into northeast Shark Slough as well as sent to canals L-31N, L-31W, and C-111, which were just east of the park.

Even with more capacity added to the system, getting water from the canals to the park was a thorny matter. In the East Everglades, 100,000 acres or more of private property lay between the L-31 Canal and park. Included in this acreage was what came to be known as the 8.5 Square Mile Area (8.5 SMA), which had begun to attract residents and plant nursery operators. Farther south, a 5,000-acre tract between the L-31W and the C-111, known as Frog Pond, had been rock plowed and was farmed seasonally, even though it was prone to flooding. Farming was also taking place in the area surrounding the C-111 Canal (sometimes called the C-111 basin), to the south of Homestead and Florida City. Operating the system so as to get more water to the northeast Shark Slough threatened to flood the 8.5 SMA. Farther south, farmers objected to the maintenance of high water levels in the L-31W and C-111 because it threatened to drown their winter vegetable crops. The limestone bedrock in this part of Dade County is extremely porous. Lowering the water stage in the two canals lowered the water table in the adjacent Taylor Slough and panhandle sections of the park.

Miami/Dade County was slow to realize the consequences of allowing settlement in the 8.5 SMA. Lying west of Levee 31N, the 8.5 SMA had no guarantee of flood protection, but there was nothing to stop people from living there. Few residents bothered to obtain building permits, but Miami-Dade officials ignored these violations. Many residents were Cuban exiles who had little experience with zoning and building regulations. A series of dry years in the 1970s gave residents a false sense of security. Then, in August 1981, Tropical Storm Dennis brought torrential rains that caused widespread flooding. Residents believed they were entitled to flood protection and clamored for it. The Dade County Commission in October 1981 attempted to deter settlement by altering the area’s zoning to a maximum of one residence per

40 acres. This move added to residents’ sense of being neglected and mistreated by government.467

In Frog Pond and the C-111 basin, the dry years in the late 1970s led farmers to expect that the soil would be dry enough by mid-October to plant tomatoes and other crops. In wetter years, this was possible only if the SFWMD lowered the water level in canals L-31W and C-111 well below their target levels. Under pressure from the farmers, the district in 1982 began lowering the water level in the canals to allow the October planting. Lower levels in the canals, though, deprived Taylor Slough of needed water. Everglades National Park agreed to the lowering in fall 1984 for that year only, to test the effects on Taylor Slough. It soon was apparent to park scientists that the fall drawdowns did indeed deprive Taylor Slough of water flows. Superintendent Michael Finley, who arrived in July 1986, began to pressure the district and the Corps on the issue of the drawdowns, pointing out that the L-31W had been added specifically to provide water to Everglades National Park. Apparently in retaliation, farmers built a chain-link fence along the state road leading to the park’s main entrance. The NPS protests had some effect, but the SFWMD continued to institute drawdowns well into the 1990s.468

Everglades National Park Lobs a Bombshell

By the winter of 1982/1983, it was apparent that the 12-year-old minimum water delivery schedule was not meeting park needs. Everglades National Park staff was already in discussions with the SFWMD over possible changes to the schedules when that winter brought heavy rains to South Florida. The Corps flushed huge amounts of water to the sea via canals north of the park, but still was forced to release large quantities to the park via the S-12 structures. The park received three and one-half times the minimum deliveries, with disastrous results. Alligator nests were flooded out and the feeding patterns of wading birds were disrupted. The plug near the mouth of Canal C-111 had been removed during the 1981 and 1982 rains, adversely affecting Barnes and Card Sounds and Florida Bay. The events of the winter of 1982/1983 confirmed the suspicions of park scientists that too much water in the normally dry winter season was as detrimental as too little water.469

467 Godfrey, 254.
468 Thomas Van Lent, Robert Johnson, and Robert Fennema, Water Management in Taylor Slough and Effects on Florida Bay (Homestead, Fla.: SFRG, Nov. 1993), 14-15; Everglades National Park/East Everglades Resource Planning and Management Committee, Implementation Plan, April 18, 1985; Michael Finley, interview by author, Nov. 19, 2012. Finley’s response to the “spite fence” was to describe it to friendly reporters as resembling “Auschwitz on the Glades.”
469 “Excess Water Pours into the ‘Glades Park,” Miami Herald, Jan. 22, 1983; Godfrey, 257-258; Abrams et al., 236.
Park discussions with the SFWMD had centered on moving away from the minimum monthly releases of water and instead tying water releases more closely to actual rainfall events. This would make the system operate more nearly as it had before compartmentalization. This became known as the rainfall-driven concept. In February or March 1983, the assistant director of the SFWMD tipped off Gary Hendrix, director of the South Florida Research Center, that the district's board was about to approve another massive discharge of water into the park. Hendrix saw this as a last straw. He consulted with Superintendent Morehead about confronting the district's board. Morehead agreed with the strategy but believed he could not be the one to make the presentation. Reagan appointees in Interior were putting intense pressure on Morehead over the impending end to commercial fishing in the park (see chapter 13). NPS Director Russell Dickenson had told Morehead to “stay in his foxhole” until the fishing controversy died down. Morehead sent Hendrix to an emergency meeting of the SFWMD board on March 10, 1983, where he announced that the 1970 schedule of minimum deliveries was no longer acceptable. He presented a seven-point action plan and requested that the following steps be implemented “as soon as feasible”:

1. Fill in the L-28 canal on the western edge of WCA 3 and breach the levee to allow surface flow into the Big Cypress Swamp.
2. Demolish the levee known as the L-67 extension and fill in its borrow canal to restore more normal flows into Northeast Shark Slough.
3. Divert as much flood water as “environmentally acceptable” to WCA 3-B.
4. Distribute water deliveries from WCA 3 along the full length of the Tamiami Canal—i.e., divert water into the Tamiami Canal east of S-12D, allowing it to flow under the trail and into the Northeastern Shark Slough.
5. Establish a more rigorous water quality monitoring program.
6. Defer implementation of any new drainage districts in the East Everglades.
7. Start a field test of a rainfall-driven water delivery schedule, one not driven by the perceived requirements of upstream water management.

Nathaniel Reed, who was then a member of the SFWMD board, described Hendrix’s request as a bombshell, noting that the Corps representative present, Carroll White, “appeared to have apoplexy.” The board directed SFWMD Executive Director Jack Maloy to study the action plan and report back at a future board meeting.

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470 Under the 1970 monthly schedule, larger releases occurred toward the end of the rainy season and were reduced during winter; the schedule did not take into account year-to-year variations in rainfall events.


472 To focus more attention on environmental issues, Governor Graham had appointed Reed to a board previously dominated by business and agricultural interests.

Maloy ordered a quick evaluation, then called an emergency meeting of the board for April 5. At this meeting, the board approved an emergency order that essentially embraced the park’s seven-point plan. The order authorized the executive director to take all actions “he deems necessary to alleviate to the maximum extent possible the current high water conditions” in the national park. Maloy was also authorized to make structural modifications to the C&SF Project, with the approval of the Corps. Any structural changes to the system and any alteration of minimum monthly water deliveries would require congressional action. Thomas Van Lent, then a water engineer with the district, now with the Everglades Foundation, believes the seven-point plan was a game changer, in that it forced the SFWMD to start taking the park’s needs more seriously.474

To implement the new plan, the SFWMD opened S-333 from late March to mid-June 1983, letting water flow into the L-29 Canal and thence through the culverts under the Tamiami Trail into the Northeast Shark Slough. The gate was closed in June, toward the beginning of the rainy season, to avoid any possibility of flooding private lands in the East Everglades. The Corps agreed not to complete the L-28 levee as originally planned, leaving a 7.5-mile gap to allow water exchange between the Big Cypress Swamp and WCA 3A. It also committed to placing two plugs in the L-67 extension. The NPS, SFWMD, and Corps also began a two-year test of keeping the S-12s open.475 This lasted until May 1985, when the gates were closed to prevent the water level in WCA 3-A from becoming too low. The operation of S-333 then continued to be debated among the SFWMD, the Corps, and East Everglades land owners. In 1984, the Corps and the District conducted two field tests in which the S-333 was opened, letting water flow east into the L-29 Canal. The data collected in the tests became the basis of an agreement with East Everglades agricultural interests that established parameters for when the S-333 should be opened.476

Experimental Water Deliveries

In November 1983, Congress authorized the Corps to begin a program of experimental water deliveries in consultation with the park and the SFWMD. The legislation also authorized the Corps to provide flood protection for the East Everglades and purchase agricultural lands there if appropriate. The Corps prepared an environmental assessment, and the first field test under the Experimental Water Delivery Program

475 Called the “Flow-Through Plan” in some documents.
(EWD) began in July 1985. This program moved in the direction of implementing the rain-driven delivery plan that park had been asking for. Water deliveries were determined based on rainfall, evaporation, the water level in WCA-3A, and the previous week’s deliveries. Under the EWD Program, a series of iterative tests, that is successive tests where each builds on the experience gained in previous tests, began. The first five tests of experimental deliveries ran from July 1985 to 1992 and involved the Northeast Shark Slough. Test 6 (1993-1995) involved Northeast Shark Slough and Taylor Slough. Test 7 was suspended in January 2000 because of concerns over potential adverse effects of the test on the endangered Cape Sable seaside sparrow (see chapter 28). Largely because of the limitations insisted upon by the East Everglades agricultural interests, EWD never delivered significant results for the park. In particular, the S-333, which delivered water into the L-29 Canal, was not kept open as often as the park had hoped. In times of high water or prior to hurricane season, large releases of water via the S-12s to the western Shark Slough continued, and water deliveries to the eastern section of the park did not increase enough to benefit the ecosystem.

In an effort to settle East Everglades issues, Governor Graham in February 1984 formed the Everglades National Park/East Everglades Resource Management and Planning Committee (ENP/EE Committee). Represented on the committee were East Everglades residents, state agencies, the Corps, the SFWMD, the Miccosukee Tribe, environmentalists, the USDA, and the NPS. Everglades Superintendent Jack Morehead was the NPS representative. In April 1985, the ENP/EE Committee forwarded an implementation plan to the governor. The plan included some 70 recommendations to be accomplished in line with a proposed three-part strategy. Part one of the strategy was an iterative testing process of rainfall-driven deliveries, in line with Congress’s 1983 authorization. The second part was the establishment of a Southern Everglades Technical Committee (SETEC). Finally the committee proposed a structured conflict-resolution process. The committee recommended that environmentally

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sensitive lands in the East Everglades be purchased and that flood protection be provided to the residents of the 8.5 SMA.480

As described above, the park, the Corps, and the District had been working together on the implementation and evaluation of the EWD to the park in the late 1980s. Republican Governor Bob Martinez continued Bob Graham’s efforts to reconcile competing East Everglades interests. He also retained Estus Whitfield, Graham’s highly regarded environmental advisor, in his post. In March 1988, Martinez created the East Everglades Land Acquisition Task Force. Martinez directed it to investigate the feasibility of the joint purchase by the state and federal governments of lands in the East Everglades. By this time, Superintendent Finley had developed a strong relationship with Whitfield; together they helped select the members of the task force, keeping the “rabid crazies” from being appointed. In its September 1988 report, the task force recommended the acquisition of approximately 101,360 acres. It excluded the 8.5 SMA and Frog Pond from this recommendation and called for them to be given flood protection. Finally, it urged Congress to authorize a continuation of the experimental water delivery program.481

Senator Graham and Congressman Fascell introduced the Everglades National Park Protection and Expansion Act (S. 724, H.R. 1727) on April 6, 1989.482 The bill largely embodied the task force recommendations and had strong support from Governor Martinez, the Miami Herald, and the Everglades Coalition. Crucially, over the winter, Superintendent Finley had obtained a meeting with president-elect George H. W. Bush while the latter was on a keys fishing trip. Finley brought maps onto Mr. Bush’s boat and explained why the park needed to be enlarged. The president-elect responded that if the bill was bipartisan, he would sign it. Bush knew Florida Bay from his fishing trips and was more environmentally inclined than Ronald Reagan. His decision to support the act was no doubt personal and political; he surely understood how important the Everglades had become to Florida voters. The bill received bipartisan support, with Florida Republican Senator Connie Mack Jr. serving as a cosponsor.483


481 Florida Governor Executive Order 88-69, Mar. 23, 1988; East Everglades Land Acquisition Task Force, Report to Governor Bob Martinez, Oct. 1, 1988; Godfrey, 270; Finley interview. Finley describes how he and Estus Whitfield brought Governor Martinez around to the idea that the East Everglades needed to be added to the park, and Whitfield and the governor got SOI Walter Hodel to agree.

482 Graham had introduced a similar bill in the previous session of Congress, but it was not considered. “Graham Worked Behind Scenes as Freshman Senator,” Miami Herald, Dec. 27, 1987.

The House Subcommittee on National Parks and Public Lands held hearings on the bill in May 1989. SOI Manuel Lujan and NPS Director Russell Dickinson sent letters of support, and representatives of leading environmental organizations testified. Jim Webb of The Wilderness Society, representing the Everglades Coalition, was deeply involved in every aspect of the legislative process. An attempt by the administration to increase the state’s share of land acquisition costs (estimated at $32 to $70 million) from 20 percent to 50 percent was defeated. Hunters and airboat users attempted to have these uses allowed in the expansion area. They were supported by some Interior political appointees, Florida Republican Congressman Clay Shaw, the National Wildlife Federation, and the Florida Wildlife Federation. Superintendent Finley and Governor Martinez worked to keep these uses out. In the end, a compromise was reached in which hunting, including frogging, was banned. Existing private airboat owners, however, were allowed to continue to operate on designated routes for their lifetimes, and the NPS was given the authority to allow the existing commercial airboat operators along the Tamiami Trail to continue under concession contracts. All airboat use was subject to regulation by the NPS to ensure ecosystem health. Congress passed the bill in November and President George H. W. Bush signed it into law on December 13, 1989, noting that “Even in times of serious fiscal constraints, we can still meet our highest environmental priorities, and this is one of mine.”

In addition to providing for the addition of more than 100,000 acres to the park, the 1989 act contained a key provision, section 104, concerning structural changes to the Central & Southern Florida (C&SF) Project. The act directed the Corps to prepare two general design memoranda (GDM), one for the Northeast Shark Slough, which it designated “Modified Water Deliveries to Everglades National Park,” and one for the “works and operations in the ‘C-111 basin’ area of the East Everglades.” The latter came to be called the “C-111 Project.” The Modified Waters Project embraced activities in the NESS, including the 8.5 SMA, roughly the area north of water control structure S-331 (see figure 6-11). The term C-111 Project was generally used to refer to the area south of S-331, in the C-111 basin. Hydrologically the two areas are closely connected, and Corps documents at times discuss them together.

While the experimental water deliveries program first authorized in the 1984 act focused on changes to the operating procedures for the C&SF Project, the 1989 act authorized structural changes to the project. In preparing the Mod Waters GDM, Congress directed the Corps to build on the experience already gained from the...

485 See chapter 6 for land acquisition pursuant to the 1989 act.
experimental water deliveries and, in consultation with Interior, “construct modifications to the . . . Project to improve water deliveries into the park and . . . to the extent practicable, take steps to restore the natural hydrological conditions within the park.” The act specifically justified the contemplated project modifications based on “the environmental benefits to be derived by the Everglades ecosystem in general and by the park in particular,” and declared that no further economic justification of such environmental benefits was required. Further, the Corps was to determine whether any modifications suggested in the final GDM would adversely affect the 8.5 SMA or “adjacent agricultural areas.” If such an adverse effect was found, the Corps was directed to construct flood protection works, but only to protect lands already developed or farmed. In preparing the GDM for the C-111 Project, the Corps was to “take all measures which are feasible and consistent with the purposes of the project to protect natural values associated with Everglades National Park.”

**Authorization of the Comprehensive Review Study**

The 1989 act, with its focus on the East Everglades, did not address all of the issues concerning the operations of the C&SF Project. Environmentalists and others began to see value in a more comprehensive reevaluation of the South Florida water situation. Colonel Terrence “Rock” Salt, the Corps’ district engineer in Jacksonville, succeeded in getting such a reevaluation study authorized in the 1992 Water Resources Development Act, which contained the following language:

> CENTRAL AND SOUTHERN FLORIDA- The Chief of Engineers shall review the report of the Chief of Engineers on central and southern Florida, published as House Document 643, 80th Congress, 2d Session, and other pertinent reports, with a view to determining whether modifications to the existing project are advisable at the present time due to significantly changed physical, biological, demographic, or economic conditions, with particular reference to modifying the project or its operation for improving the quality of the environment, improving protection of the aquifer, and improving the integrity, capability, and conservation of urban water supplies affected by the project or its operation.

This review report became known as the Comprehensive Everglades Review Study or simply the “Restudy.” The 1992 act contained no appropriations for the Restudy, which became the responsibility of the incoming Clinton administration. Chapter 28 contains the story of how the Restudy eventually resulted in the Comprehensive Everglades Restoration Plan (CERP), enacted in 2000.

488 Godfrey, 299.
A Growing Emphasis on Everglades Water Quality

In the 1950s and early 1960s, the quantity and timing of water deliveries to the park tended to be a more urgent concern of the NPS than the water’s quality. Park managers, nonetheless, were aware that as the C&SF project was implemented, areas north and east of the park would be more intensively used for agriculture, thereby increasing the probability that run-off from these areas would be less pure. After the levees surrounding the Everglades Agricultural Area (EAA) were completed in 1962, cultivation of sugar cane and winter vegetables increased dramatically there (figure 9-6, Everglades Agricultural Area). Because of its uses in industry, particularly for manufacturing munitions, the U.S. considered sugar a strategic commodity. Through quotas and subsidies, the federal government attempted to assure an adequate supply, either from domestic cane and sugar beet producers or from dependable allies, such as the Philippines and Cuba. In the 1950s, Cuba was the world’s largest sugar producer. The 1959 Cuban Revolution and its aftermath led the U.S. to suspend Cuba’s sugar quota and allow unlimited sugar planting in the U.S. through the end of 1962. This touched off a sugar cane boom in Florida, the bulk of it in the EAA. An estimated $100 million was invested in Florida’s sugar industry from 1960 through 1965. With the completion of the channelization of the Kissimmee River in 1971, stock raising increased there and in the Nubbins Slough/Taylor Creek basin, which also drains into Lake Okeechobee. As described above, agriculture also had expanded in southwestern Dade County directly adjacent to the park. All of this activity had the potential to discharge pollutants to the park.490

The result of this expanded agriculture in South Florida was the release of increased amounts of fertilizers, animal waste, pesticides, and herbicides into surface and ground water. As early as the 1960s, the park had expressed concern about the use of pesticides by Dade County vegetable farmers and pushed to expand testing of water quality. Over time, fertilizers and animal waste emerged as the biggest problem for the Everglades ecosystem. Fertilizers and waste acted as nutrients, causing the explosive growth of algae, cattails, and other aquatic plants historically absent in the Everglades basin. Historically nutrient poor, the Everglades reacted to even small increases in nutrients like phosphorous. For the most part, these contaminants first appeared in Lake Okeechobee and the WCAs, but inevitably some made their way into Everglades National Park. Lake Okeechobee was first to show signs of stress in the early 1970s. Algal blooms were increasingly common, and scientists began to suspect the cause was

Figure 9-6 Everglades Agricultural Area
nutrient loading from the Kissimmee basin and the EAA. Run-off from Kissimmee basin cattle pastures and barns flowed freely into the lake’s watershed. When EAA sugar growers needed lower water levels in their fields, the WMD “backpumped” water from the EAA to Lake Okeechobee or the WCAs. A 1971 USGS report concluded that the shallow lake was in the early stages of eutrophication. Art Marshall was among the first to argue that dechannelizing the Kissimmee River would both help restore Lake Okeechobee’s health and improve wildlife habitat in the basin. Marshall and other scientists believed that the meandering river and its adjoining marshes previously had acted to slow water flow and cleanse the water of nutrients before it reached the lake. Once made into a straight canal, the river sped nutrients directly into the lake. A long campaign by environmentalists and others to dechannelize the Kissimmee now began.

Undoing engineering works mandated by the Congress required new congressional action. While environmentalists lobbied for this, the Corps resisted the idea of dechannelization, and EAA growers argued with Kissimmee basin ranchers over who was most to blame for Lake Okeechobee’s problems. Following various studies and pilot programs, Congress in 1992 directed the Corps to begin dechannelizing C-38 and restoring more natural conditions to the Kissimmee. Planning and land acquisition occupied several years, but in spring 1999, the Corps began filling in portions of C-38, allowing the river to meander. Positive results soon appeared, with “vegetation more characteristic of pre-channelized floodplain marshes soon return[ing].” The successes experienced in the Kissimmee project encouraged environmentalists and Everglades National Park supporters that a more thoroughgoing repair of the Everglades ecosystem might be possible. It was an important step toward what emerged in 2000 as the Comprehensive Everglades Restoration Program (see chapter 28).

Excess nutrients in Lake Okeechobee and the WCAs was far from Florida’s only pollution issue. In the 1980s, mercury pollution in South Florida arose as a concern. The state’s Department of Health and Rehabilitative Services found elevated concentrations of mercury in largemouth bass taken in the WCAs and the park. Mercury enters the atmosphere regionally and globally through the burning of coal and the incineration of municipal waste. It is then deposited out of the atmosphere and can enter the food chain. Since the 1980s, mercury has been continued to be detected in South Florida plants and animals, especially those, like the Florida panther, at the

491 In eutrophication, an excess of nutrients results in explosive growth of algae and other plants. This depletes oxygen, leading to the death of fish and other aquatic animals. All lakes are naturally prone to eutrophication; when the process is accelerated by human actions, it is called “cultural eutrophication.”

492 Acting Supt. Carroll Burroughs to Dr. H. P. Richardson, Nov. 8, 1963, EVER 22965; Godfrey, 141-143; Hollander, 244.

top of the food chain. The park and SFRMC have actively monitored mercury in the environment since 1993. Mounting concern over water quality led to the passage in 1987 of Florida’s Surface Water Improvement and Management (SWIM) Act. Under the act, a list of bodies of water of regional and state significance was established. Lake Okeechobee and the Everglades declared waters of state significance. For each identified body of water, the appropriate water management district was required to develop a surface water improvement and management plan (SWIM plan).

The United States Sues Florida over Water Quality

The preparation of the draft SWIM plan for Lake Okeechobee in 1988 provided an opening for sportsmen, environmentalists, and Park Service managers who were impatient with the meager progress being made on Everglades water quality. The park found the plan inadequate and was aware that the SFWMD was exceeding the water quality standards it had agreed to with the NPS. Superintendent Finley had been laying out his concerns over water pollution before the district’s board, but had gotten nowhere. Among the many contacts he had made in Florida was Dexter Lehtinen, a Homestead native who was in the state legislature. Lehtinen was a rising star in the state Republican Party and was appointed acting U.S. Attorney for the Southern District of Florida in June 1988. That summer, Lehtinen phoned Finley and asked how he could help the Everglades. The attorney had already heard from sportsmen’s groups about water pollution and Finley had had discussions with environmental groups about a lawsuit. Those groups, though, lacked the required standing to be plaintiffs. At a meeting in Miami’s Firehouse Restaurant, Finley and Lehtinen decided to bring suit on behalf of the NPS and FWS against the state for violating its own water quality standards. Both knew they would never get permission from their bosses in Washington for such a suit, so agreed to proceed in secret. Lehtinen assigned a couple of attorneys to the case and Finley consulted only with a couple of scientists in the park.

Lehtinen and Finley wanted to file the action a few weeks before the November 8, 1988, presidential election that pitted Vice President George H. W. Bush against Massachusetts Governor Michael Dukakis. Bush was running as a protector of the environment, attacking Dukakis for his failure to address pollution in Boston Harbor. Lehtinen and Finley believed it would be politically awkward for the Reagan/Bush administration to pull the plug on their environmental lawsuit in the middle of the

494 For regulatory purposes, the Everglades was defined as Everglades National Park and the three WCA.
496 Finley and Browder interviews.
campaign. Lehtinen filed the suit late on the afternoon of Friday, October 7, although it was not officially logged in until Tuesday, October 11, following the three-day Columbus Day weekend. That Friday, Superintendent Finley called NPS Director William Penn Mott and Governor Martinez, giving them their first notice of the legal action. Mott was privately enthusiastic though he could not be publicly, and Martinez was chagrinned. Lehtinen and Finley appeared before a room full of media representatives, and the *Miami Herald* headlined, “U.S. Files Suit to Halt Everglades Pollution.”

Plaintiffs in the lawsuit were Everglades National Park and the Arthur R. Marshall Loxahatchee National Wildlife Refuge (Loxahatchee NWR). The defendants, the SFWMD and the Florida Department of Environmental Regulation, were charged with violating Florida law by allowing water contaminated with nitrogen and phosphorus to flow onto federally protected land. Although Loxahatchee NWR Manager Burkett S. Neely Jr. did not know of the suit until it was filed, it was crucial to have the NWR as a plaintiff. The reserve is adjacent to the Everglades Agricultural Area, and nutrient pollution was much more severe there than in the park (Figure 9-7, U.S. Sugar Corp. refinery at Clewiston). The great paradox of the lawsuit was that the U.S. Army Corps of Engineers, which built the water control system under a mandate from Congress, could not be named as a defendant. Once the lawsuit was filed, Governor Martinez flew to Washington to press Reagan Attorney General Richard Thornburgh to withdraw the suit. Thornburgh replied that he would not undercut his subordinate and wished Martinez a pleasant flight home. Later that winter, Superintendent Finley in his previously noted fishing-boat meeting with the president-elect, convinced Mr. Bush not to withdraw the suit.

Environmental groups generally approved of the lawsuit, hoping it might serve to break the deadlock that seemed to prevail. Nathaniel Reed observed: “If it takes a federal court case or a hurricane, whatever (it takes) to remove some of the logjam, I’m for it.” More than anything, the suit was a lever that forced the state to take concrete steps to deliver on its vague assurances that it was protecting Florida’s waters. It also showed that the NPS was going to make its voice heard and insist on a place at the table.

The water quality action was assigned to U.S. District Judge William Hoeveler. Although the Department of Justice let the case go forward, it gave Lehtinen few resources to pursue it. The State of Florida, by contrast, spent millions on its defense.

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497 Finley interview, “U.S. Files Suit to Halt Everglades Pollution,” *Miami Herald*, Oct. 13, 1988; Godfrey, 279-281. When Finley got the governor on the line, he told him he had good news and bad news. When told that the bad news was that the U.S. had sued the state, Martinez asked what possible good news there could be. Finley replied that Martinez had not been named as defendant in the suit.

498 Finley interview; Nathaniel Reed, interview by author, May 22, 2012; Godfrey, 281-282.

Judge Hoeveler allowed the Florida Sugar Cane League and other agricultural interests to enter the case as interveners, which had the effect of further extending the discovery process with document requests and depositions. Democrat Lawton Chiles, running for governor in 1990, promised to settle the lawsuit and make the Everglades his top environmental priority. Once in office, Chiles on May 20, 1991, appeared in Hoeveler’s courtroom. In a move that has entered the folklore of the Everglades, Chiles told the judge that the state was guilty and “surrendered his sword.” He said, “We want to surrender. We want to plead that the water is dirty. We want the water to be clean, and the question is how can we get it the quickest.” Negotiations commenced in earnest. Also in May, the Florida legislature passed the Marjory Stoneman Douglas Everglades Protection Act, which dealt with many of the same water quality issues. In July 1991, the U.S. Department of Justice, the SFWMD, and the Florida Department of Environmental Regulation signed a settlement agreement. Judge Hoeveler ratified the agreement with a consent decree entered February 24, 1992.500

The settlement agreement largely provided a framework for improving water quality, but it established a number of important goals and contained several commitments

500 “Judge Signs Off on Glades Cleanup Deal,” Miami Herald, Feb. 25, 1992; United States v. South Florida Water Management District, 847 F. Supp. 1567 (S.D. Fla. 1992), later affirmed by 28 F.3d 1563 (11th Cir. 1994); Godfrey, 283-285. Michael Soukup was director of the SFRC in the early 1990s and heavily involved in the settlement discussions. He has observed that had Lehtinen moved for summary judgment in the case when Chiles surrendered, Judge Hoeveler might have agreed, saving a great deal of time and trouble.
by the state. In the agreement, the state and federal governments pledged to “guarantee [the] water quality and water quantity needed to preserve and restore the unique flora and fauna of the Park and the Refuge.” The state agreed to take such action as needed to ensure that the water entering the two federal areas would meet state water quality standards by July 1, 2002. The agreement set a year 2000 target for phosphorous concentrations in water entering the park’s Shark Slough at less than 13 part per billion (ppb) in a dry year and 8 ppb in a wet year. It is important to note that at the time the consent decree was entered, Florida had no legislatively established numerical water quality standards. The existing narrative standard stated that nutrient concentrations in Class III water would not “cause an imbalance in natural populations of aquatic flora or fauna.” The agreement also committed the state to the construction of 35,000 acres of stormwater treatment areas (STAs), meant to filter out phosphorous and other nutrients before water reached the WCAs. The state was also to institute a permit system for growers in the EAA. The growers would need to institute best management practices and adhere to phosphorous concentration standards before begin granted a permit to discharge water to the STAs or WCAs. Additional provisions of the agreement established a research and monitoring program and implementation procedures. The settlement plan closely followed the provisions of the Marjory Stoneman Douglas Everglades Protection Act, but was more specific in some instances.501

Water Situation as of January 1993

At the time of Bill Clinton’s inauguration as president in January 1993, this was the status of the fight to get the water right for Everglades National Park. The experimental water delivery program had achieved little, chiefly because of the flooding risk to private interests in the East Everglades. Land acquisition under the Everglades National Park Protection and Expansion Act of 1989 was beginning, but controversy continued over the fate of the 8.5 Square Mile Area and the Frog Pond. Congress had not appropriated any funds for the Restudy, the thoroughgoing review of the Central and Southern Florida Project that it had mandated in late 1992. The water quality lawsuit had put that issue front and center, and many had high hopes for the process that was set in motion by the consent decree. The story of how these developments culminated in the December 2000 passage of the Comprehensive Everglades Restoration Plan is contained in chapter 28.

Chapter 10: Wilderness
Values and Wilderness Designations

Much has been written over the years about the wilderness character of Everglades National Park. The NPS points with justifiable pride to section 4 of the 1934 Everglades authorizing act:

The said area shall be permanently reserved as a wilderness, and no development of the project or plan for the entertainment of visitors shall be undertaken which will interfere with the preservation intact of the unique flora and fauna and the essential primitive natural conditions now prevailing in the area.

Section 4 is the basis for the often-repeated assertion that Everglades was the first national park set aside for its biological values. As has been shown in chapter 3, this language was not the NPS’s idea, but placed into the legislation by wilderness advocates outside the Service. A number of motivations underpinned the emergence of a vocal wilderness protection movement in the early 1930s. This movement led to the inclusion of section 4 in the act and to the formation of the Wilderness Society less than a year after Everglades was authorized. As historian Paul Sutter has demonstrated, the major concern of wilderness proponents was that modern civilization, especially the motorcar, was compromising the nation’s primitive or primeval natural areas. Dear to the heart of Robert Sterling Yard, Aldo Leopold, and the other Wilderness Society founders was guaranteeing the opportunity to experience a natural environment of solitude, quiet, and inspiration for a week or more at a time, with no intrusions from the modern world. In their conception, wilderness areas had to be relatively large and remote from highways and railways. This desire had strong aesthetic and spiritual aspects as well as romantic undertones of a man proving his mettle by being able to survive in the wild. The automobile and uncontrolled road building were seen as the greatest threats to this wilderness experience. The extensive program of road building and other development that the NPS was undertaking with CCC labor in the 1930s only added to the concerns of wilderness advocates.

The idea of wilderness areas as biological preserves or laboratories for scientific inquiry was present in the thinking of wilderness advocates, but it was a minor note. As Sutter puts it, “ecological concerns were not a central causative agent or a major component in the [Wilderness Society] founders’ definition of modern wilderness.”

The interest in biological preserves came largely from a different quarter: the second

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503 Sutter, 14.
generation of American ecologists. As early as 1918, the Ecological Society of America formed a committee to look into setting aside public land as research reserves. Victor Shelford, the society’s first president, in 1933 proposed a system of nature sanctuaries “containing unmodified assemblage[s] of organisms.” These were to be set aside for scientific study; the largest and most unmodified (dubbed first class sanctuaries) would be off-limits to visitors without scientific or educational goals. These sanctuaries would allow scientists to study natural process and also serve as controls—places where ecological forces could operate largely uninfluenced by humans—making it easier to track and evaluate changes elsewhere. While the wilderness advocates largely sought to set aside areas for a special kind of visitor experience, the ecologists wanted sanctuaries for scientific study. The wilderness advocates were more numerous and better organized. In the 1930s, ecology was a young science, and its insights had barely penetrated the thinking of leaders of major conservation organizations.504

In general, the NPS in this period saw no need to specifically define wilderness areas in parks for any reason, inspirational or scientific. The Service took a stance that can be characterized as wilderness by default; any areas not developed for visitor use or park administration constituted wilderness. The NPS saw this position as fully consonant with the mandate in the 1916 Organic Act to leave areas unimpaired for future generations. This approach left the Service free to extend development into virtually any park area if its needs changed. An ecologically based approach to development, although hinted at in the views of scientists in the early 1930s, would only begin to gain ground in the 1970s. Under this approach, large natural areas would first be carefully studied to determine the habitat needs of species and the sizes of viable ecosystems, and only after that would development plans be made. Development then would more likely avoid damaging natural processes. As ecology advanced as a science and pressure built to enact a national wilderness act, the NPS gradually moved away from its wilderness-by-default position and came to accept that wilderness areas needed more positive protection and more active management to prevent their degradation.505

In developing Everglades, the NPS largely applied its long-standing wilderness-by-default policies. It did not ignore the wilderness mandate in the authorizing act, but accommodating the motorized visitor was the main determinant in its decisions concerning the route of the main park road and development at Flamingo. The NPS was also under strong pressure from state officials and tourist interests to develop the park rapidly. Even if it had possessed the resources and the will, it did not have the luxury of waiting for wildlife studies in advance of park development. Park

505 Miles, 35, 53, 65, 81. There are minor exceptions to this broad picture. In 1927, the NPS designated a seven-square-mile portion of Yosemite National Park as a research reserve. Miles, 61.
managers relied heavily on the argument that the vast majority of Everglades National Park would be preserved as wilderness solely as a result of the difficulty of access. NPS wildlife biologist George Wright made this argument as early as 1931, before Everglades had been authorized. During Mission 66, the NPS argued that carefully planned development actually helped preserve wilderness values. Associate Director Hillary Tolson expressed this view in 1960:

> It is basic in our management of the Parks and preservation of their wilderness that reasonable access be provided for the public. We believe that the Flamingo development meets this situation and that a well designed developed area such as this is an aid to protection.

As swamp buggies, airboats, and inexpensive outboard motors became increasingly common, the wilderness-by-default argument became harder to maintain. Leading national conservation organizations also began leaning harder on the Service to revise its wilderness policies.

### The 1964 Wilderness Act

Everglades National Park was developed during the very years that conservationists, led by Howard Zahniser of the Wilderness Society, were pressing Congress to establish a national wilderness preservation system across all federal lands. After World War II, the Wilderness Society, the Sierra Club, and the National Parks Association increasingly coordinated their activities. The Sierra Club began a series of biennial wilderness conferences in 1949. These conference brought agency land managers and conservationists together to discuss a wide range of wilderness issues. From these meetings emerged the first version of a wilderness act, largely drafted by Zahniser and introduced in Congress in 1957. Seeing the act as a threat to its administrative authority and prerogatives, the NPS under Director Conrad Wirth fought to exclude the Service from its provisions, although a few in the Service quietly supported it from the beginning. In addition, the Service in the 1950s was preoccupied with its ambitious Mission 66 building program. At the heart of Mission 66 was the idea that accommodating visitors came first, and areas not needed for development amounted to “wilderness by default.” It took some time to build support in Congress for the act, and some changes

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506 Wright noted, “The visitor . . . will be absolutely confined to the roads and the developed areas . . . These are the reasons, then, why it seems to us that a park, if established, could be opened up so as to make adequate provision for the appreciation of the Everglades . . . and still further conservation of the unique flora and fauna to the utmost.” George M. Wright to Ernest F. Coe, Oct. 9, 1931, SLH papers.

were negotiated as early versions went down to defeat. The endorsement of President Kennedy and his Secretary of the Interior Stuart Udall changed the political equation, and President Johnson signed the Wilderness Act into law in September 1964. By this point, the act had the reluctant support of the NPS.508

The Wilderness Act created the National Wilderness Preservation System. It defined wilderness and prohibited certain uses within wilderness areas. The act defined wilderness as:

an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation.

The act banned permanent roads and motorized vehicles, including motorboats, from wilderness areas. It directed the Secretary of the Interior to evaluate all roadless areas of 5,000 acres or more in units of the National Park System within ten years of the act’s passage. The secretary was then to recommend to the president those areas deemed suitable for designation as wilderness. Each proposed designation was to be advertised in the Federal Register, with one or more public hearings held before the recommendation was put in final form. The president was then to forward Interior’s wilderness proposals to Congress; Congress made the final decisions on what was added to the Wilderness Preservation System. Further, congressional action was needed to remove federal acreage from the wilderness system.509

The NPS understood that the 1964 act required a complete revamping of its approach to wilderness. Under the 1964 act, the NPS for the first time had a prescribed definition of wilderness to apply and a mandate to designate wilderness. Once designated, wilderness areas would no longer be available for development and many other park purposes. In essence, the NPS was losing its ability to vaguely consider most of a park wilderness until it needed a particular tract for another purpose.510

As a number of historians have shown, the NPS was slow in fulfilling its mandate under the act. Its task was large; some 57 units within the system had roadless areas of 5,000 acres or more and each would have to be studied. The delays were also partly a result of cumbersome procedures, bureaucratic inertia, and the NPS’s initial insistence

508 Miles, 120-126, 151-156; Mark W. T. Harvey, Wilderness Forever: Howard Zahniser and the Path to the Wilderness Act (Seattle: University of Washington Press, 2005), 189-190, 204-209.
509 Wilderness Act, P. L. 88-577, Sep. 3, 1964. Since the act’s passage, historians, led by William Cronon, have shown how problematic it can be to define wilderness as something apart from humans, especially as we learn more about the extensive management of landscapes by Native Americans before Europeans set foot in the Americas. An exploration of these contradictions is beyond the scope of this park history, but the reader should bear in mind that wilderness is a contested term.
510 Miles, 51.
that wilderness reviews be coordinated with the master planning process in each park. Master plans in this period typically required two to three years to complete. The change from a Democratic to a Republican administration in January 1969 also slowed things down, because new political appointees in Interior wanted to review existing wilderness studies. Still, it was clear that the NPS moved very slowly because it understood that a congressional designation was permanent and would limit its managerial discretion. Groups like the Sierra Club and the Wilderness Society criticized the Service’s first attempts to set guidelines for wilderness reviews, in particular its intention to place large “buffer zones” around developed areas and roads. Early draft wilderness reviews, for example, placed wilderness boundaries as much as a mile away from park roads, creating large buffers that were outside of the wilderness. A scathing article in the Spring 1970 issue of Living Wilderness and pressure from Congress caused the agency to move a bit faster. Wilderness recommendations began to emerge from Interior, and Congress made the first designations of NPS wilderness in October 1970, six years after the passage of the Wilderness Act.

**Designating Park Wilderness**

Early internal discussions on designating wilderness areas in Everglades National Park are not well documented. The NPS formed an Everglades National Park Wilderness Study Team in late 1966, but no recommendations from this group have been located. A year later, in December 1967, The Wilderness Society held a two-day “Wilderness Workshop on Everglades National Park” in South Florida. NPS staff and representatives of the Florida Audubon Society and other interested groups attended. Topics under discussion included how much of a buffer to provide along roads and around developed areas like Flamingo, how close to the park boundary the wilderness boundary should be, and whether areas that might be developed in the future should be excluded from wilderness. At this early stage, buffers of a one-half mile to a mile on each side of the main road were under consideration. Another concern was the easy access by motorboat to many areas of the park. Park collaborator Frank C. Craighead noted that “This Park will be difficult to classify into the standards set up for Wilderness Areas. It is [so] readily accessible through many waterways that isolation of any sizable part will be a real problem.” Most workshop participants urged that large

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511 Sellars, 211, 280; Ernest M. Dickerman, “The National Park Wilderness Reviews (Lost in the Wilderness),” Living Wilderness 34/100 (Spring 1970):40-49.
wilderness areas be established so as to prevent any future park development beyond areas already affected.\footnote{Ernest M. Dickerman, TWS, to Stewart M. Brandberg, Exec. Dir, TWS, Nov. 4, 1967, Discussion Points for Wilderness Workshop on Everglades National Park, Dec. 16-17, 1967, Frank C. Craighead to Stewart M. Brandberg, TWS, Sep. 28, 1967, TWS papers.}

Following the workshop, wilderness designation fell lower on the priority list for a couple of years while park managers focused on fighting the jetport in the Big Cypress Swamp (see chapter 9). Believing the NPS was laggard in designating wilderness and seeking less development in the parks, the National Parks & Conservation Association (NPCA) commissioned several independent wilderness plans. In early 1970, the association had land use planning consultant William J. Hart prepare a wilderness plan for Everglades. Hart believed that the vast majority of the park should be wilderness, with only roads and developed areas excluded. He wanted Florida Bay included, subject to somewhat relaxed standards. Acknowledging that motorboats would have to be allowed in the bay, Hart believed that damage to natural values could be limited by strict controls, including restricting larger motorboats to specified dredged channels. Along the Gulf Coast, he recommended that motorboats be allowed to penetrate only to specified access points, with inland waters largely reserved for nonmotorized craft.

In transmitting Hart's plan to Director Hartzog, NPCA President Anthony Wayne Smith noted that the 1965 version of the park's master plan included considerably more development than the association considered appropriate. He saw an expansive wilderness designation as an ideal way to prevent excessive development.\footnote{Anthony Wayne Smith, president, NPCA, to Dir. Hartzog, Feb. 24, 1970, HFC; “The NPCA Wilderness Plan Series,” \textit{National Parks Magazine}, Sep. 1971, 29. Ideas about limiting motorboat access in Florida Bay would re-emerge in the discussions surrounding the park's general management plan (see chapter 26).}

Between 1972 and 1974, the NPS rushed to complete its wilderness reviews by September 1974, as the act required. In August 1972, the Service produced a preliminary draft of a wilderness study for Everglades. Minor changes were made to this draft before it was printed and distributed in January 1974. The study proposed two wilderness areas aggregating 764,700 acres, 54 percent of the park. One unit of 616,000 acres embraced almost all of the park west and north of the main road; a second unit of 148,700 acres embraced much of the area east and south of the road. Some 140 miles of park road and all developed areas were excluded from wilderness, including almost all of Long Pine Key. Included in unit 2 were all of the keys in Florida Bay, but the bay itself was not included. Almost all of the large bodies of water and navigable passages on the Gulf side were excluded from wilderness. Slated for use by motorless boats only were several lakes—Long, Cuthbert, Henry, Little Henry, the Lungs, Monroec, Middle, and Seven Palms—and some streams entering Florida Bay, such as Taylor River and McCormick, Davis, East, and Mud Creeks. Because motor roads are not
allowed in wilderness, the study called for management roads between Flamingo and Snake Bight and from Flamingo to Lake Ingraham to be converted to trails. The wilderness boundary was set 300 feet from the center line of major roads within the park and 150 feet from the center line of lesser roads. This was considerably closer than in some of the preliminary planning which contemplated road buffers of one-half mile or even a full mile from the center line. The study identified 84,700 acres of potential wilderness. The potential wilderness included portions of the northwest extension still subject to retained mineral rights and inholdings in the Hole-in-the-Donut that were in the process of being added to the park. Joe Bay and Little Madeira Bay were identified as potential wilderness because they were still open to commercial fishing. It was the park’s intention to make them wilderness if commercial fishing ended in future.515

The park held public hearings on the wilderness proposal in Homestead and Naples in late May 1974. In presenting the study, Superintendent Jack Stark emphasized that the plan “would have little impact on the typical visitor . . . as the areas most frequented by visitors are not placed in wilderness.” Some 200 attended the hearings and the park received a total of 1,857 oral and written comments. Environmental groups strongly supported the proposal; most of them, led by the Wilderness Society, urged that the seabed of Florida Bay be added to the wilderness and that much of the potential wilderness, Joe Bay and Little Madeira Bay in particular, be added to the designation. Commercial fishermen, some sports fishermen, and some motorboating groups thought the plan was too restrictive. Most objections centered on the waters that were to be closed to motorboats. Some long-time local users saw the restrictions as favoring an elite group of visitors. As Captain Jack Glassmyer put it: “I contend if you close these areas to motorboats you will be in effect actually closing them to almost all the people.” Following the hearings, Gary Soucie of the Wilderness Society remarked, “Why it has taken the National Park Service so long to prepare a wilderness proposal for an essentially wilderness park must remain something of a mystery to me,” but he was delighted that the proposal was moving forward.516

The NPS revised its proposal in the wake of the hearings. After some discussions with the state of Florida, it decided that it could make the submerged lands of Florida Bay part of the wilderness while excluding the water column above them, thus not interfering with the long-established use of the bay by motorboaters. Florida Bay’s bed became wilderness unit 4. The submerged lands of Joe Bay and Little Madeira

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Bay were included in unit 4, thus removing them from the potential wilderness category. The other major change was the addition of 2,400 acres of pine upland on Long Pine Key as wilderness unit 3. This required the conversion of two automobile nature trail loops to a bicycling/hiking trail. The Service prepared an environmental impact statement (EIS) to accompany the plan and published its revised recommendation in August 1974. It proposed four wilderness units, totaling 1,296,500 acres, nearly 93 percent of the park (figure 10-1). These were the units:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Acres</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>148,700</td>
<td>Taylor Slough drainage and keys</td>
</tr>
<tr>
<td>2</td>
<td>616,000</td>
<td>The Ten Thousand Islands, Whitewater Bay</td>
</tr>
<tr>
<td>3</td>
<td>2,400</td>
<td>Pinelands</td>
</tr>
<tr>
<td>4</td>
<td>529,300</td>
<td>Submerged marine lands</td>
</tr>
</tbody>
</table>

Interior forwarded the Everglades wilderness proposal to the president on September 21, 1974, who passed it on to Congress without changes. Because so many recommendations went to Congress toward the end of the ten-year period, a backlog was created. Everglades missed a 1976 omnibus bill, but was included with 11 long-pending wilderness designations in another omnibus bill, the National Parks and Recreation Act of 1978 (see appendix A). In reporting the bill out, the House Committee on Interior and Insular Affairs directed the secretary of the interior to look into the effects on wildlife of motorboat access to wilderness areas on the park’s west side.

Richard Ring, Everglades superintendent from 1992 to 2000, believed that naming the Everglades wilderness for Marjory Stoneman Douglas would be a fitting honor. He had his policy aide, Brien Culhane, work with the WASO legislative branch on drafting legislation. In 1997, Congress redesignated the Everglades wilderness as the Marjory Stoneman Douglas Wilderness to “commemorate the vision and leadership shown by Mrs. Douglas in the protection of the Everglades and the establishment of the Everglades National Park” (see appendix A). At the time, Douglas was 106 years old and largely confined to her bed. Sandy Dayhoff, park education coordinator, visited Mrs. Douglas at her home to tell her of this honor. As Dayhoff puts it, “It was a

517 NPS, Wilderness Recommendation.
518 Omnibus bills for the NPS were an innovation of Congressman Phillip Burton (D-California). By combining many new authorizations, boundary changes, and base funding increases affecting dozens of congressional districts in a single bill, Burton assured broad support.
520 Sec. 3, Marjory Stoneman Douglas Wilderness and Ernest F. Coe Visitor Center Designation Act, P. L. 105-82, Nov. 13, 1997. It takes nothing away from Douglas’s tireless efforts on behalf of the Everglades from the late 1960s on to point out that her role in the establishment of the park was slight.
Figure 10-1 Everglades Wilderness Areas
very emotional thing for Marjory. She said, ‘Oh my, oh my!’ It was wonderful that before she passed, she got to hear that – she understood what had been done for her.”

Wilderness Evaluation of the East Everglades Addition

With the addition of the East Everglades, the park was required to do a wilderness study for the 109,506 acres added to the park. In 2006, the East Everglades wilderness study was folded into the park’s general management plan (GMP) process, the public scoping for which began in 2002 (see chapter 27). The park’s initial assessment was that about 106,000 acres (97 per cent) of the East Everglades addition were suitable for designation as wilderness or potential wilderness. Areas excluded from consideration as wilderness were the Chekika developed area, developed areas (including airboat operations) along the Tamiami Trail, and some roads. As planning proceeded it became clear that Congress’s intent was for private and commercial airboat operations to continue in the East Everglades. Because airboats are incompatible with wilderness values, areas where they operated were excluded from wilderness consideration. The preferred alternative in the park’s draft GMP calls for 80,100 acres to be declared wilderness. Another 9,900 acres would be potential wilderness, to be designated wilderness when incompatible uses end. The remaining 19,500 acres are proposed as frontcountry. About 12,000 of these acres are in the northwestern portion of the addition, where the long-standing use of airboats would continue (see chapter 23). Once the GMP is approved, a wilderness recommendation for the East Everglades will be developed for ultimate action by Congress.

Managing Wilderness

When Congress established the Everglades wilderness in 1978, the park created a backcountry management function within the resource management division. Resource management then took the lead in developing a backcountry management plan (BMP). Approved in 1981, the plan was prepared by Backcountry Management Technician Jonathan Poynter and Resource Management Specialist James Holland. The BMP devoted some attention to administrative use of the backcountry (fire management, law enforcement, scientific research, and resource management), but focused primarily on visitor use of the backcountry. The plan stated: “The overriding


management objective is to provide the visitor with a variety of wilderness experiences without incurring significant resource deterioration.” The plan referenced the National Environmental Policy Act of 1969, but NPS policies in 1981 did not require the preparation of an environmental assessment or environmental impact statement in conjunction with such a plan. The plan omitted a number of features that would today be required in a wilderness management plan. It did not, for example, include a statement of desired future condition or provide much detail on how impacts on wilderness would be monitored and evaluated. It depended on the existing resource management function, stating that resource management “will work with each district ranger in monitoring and evaluating the impacts of the backcountry program as it affects visitors, endangered species, and the park resources.” It seems clear that “backcountry program” largely meant backcountry visitor use.\footnote{523 Everglades Backcountry Use and Policy, circa 1985, EVER 42242, Ser. VI, Subser. A, Subser. 2; Everglades National Park, Backcountry Management Plan, July 1981, 1, 6.}

Regarding administrative uses, the plan recognized that airboats and helicopters were often needed for park staff to carry out their duties and cited NPS policy that such use would be allowed only when “necessary to meet the minimum needs of management to achieve the purpose of the area.” All administrative use of motorized vehicles in the Everglades backcountry, except for emergency law enforcement, search and rescue, and fire suppression, would require prior approval. Each park division was to include information on any projects requiring such use in its annual budget plan. Approval by the superintendent of the programs in the budget plans constituted approval of the use of motorized vehicles.\footnote{524 ENP, Backcountry Management Plan, 24, 29.}

Over the years, park managers have worked to balance appropriate visitor access and enjoyment with wilderness preservation. The park banned glades buggies and airboats from the park in 1949. In 1955, the Service prohibited reckless boat operation and established a 40 mph speed limit for motorboats. In 1994, before the NPS had a national policy, the park instituted a ban on personal watercraft in park waters. An important measure included in the park’s 2013 draft GMP is the creation of a poll-and-troll zone in approximately one-third of Florida Bay. In this zone, all boat motors except small trolling motors would be banned, in order to enhance wilderness values.\footnote{525 14 Fed. Reg. 3748 (July 7, 1949); 20 Fed. Reg. 2663 (Apr. 21, 1955); 59 Fed. Reg. 58,781-58,786 (Nov. 15, 1994); Draft GMP, 69.}

In the late 1980s, park managers decided that it was time to begin work on a true wilderness management plan, and a committee was formed to work on one. It quickly became apparent that the scoping and preparation of such a plan, including coordinating public involvement, was a huge task. The group did not complete a plan but evolved into a body that met periodically, largely to look at proposed activity in the wilderness. The committee relied on the EIS prepared in the 1970s at the time of...
the wilderness designation, Servicewide wilderness policies, and the 1981 BMP. The committee has evolved into a multidisciplinary committee that now meets monthly. It applies “minimum requirements” analysis, a two-step process that first determines whether an action is appropriate or necessary, including whether it can be accomplished elsewhere than in park wilderness. If the action meets that test, the committee goes on to decide whether the tools, equipment, and methods proposed are the minimum necessary to achieve the management objective and are the least damaging to wilderness values.\footnote{Skip Snow, interview with author, Oct. 5, 2011; Chapter 6: Wilderness Preservation and Management, National Park Service Management Policy, 2006; Operations Evaluation Report, ENP, Apr. 24, 1987, EVER-00470; Skip Snow, personal communication, Oct. 23, 2012; Fred Herling, personal communication, Feb. 11, 2011.}

With the increase in funding for research that came with the 2000 enactment of the Comprehensive Everglades Restoration Plan, requests to conduct research and monitoring in the park increased substantially. These requests came both from government researchers and academic scientists. Given that 90 percent of the park is wilderness and that monitoring and testing sites often can be reached only by using helicopters and airboats, requests for the use of such equipment in wilderness also grew. In consequence, there are five to six thousand helicopter landings in park wilderness annually. This has led to tension between some researchers and some members of the park’s wilderness committee. Some observers have asked whether the park is rigorously questioning whether some activities might not be pursued with equal success outside its boundary. These observers believe park managers at times take “necessity” for granted and press for an immediate move to minimum-tools analysis. Some have also pointed out that temporary structures erected for research are not always removed when the project is completed. Scientists and technicians tend to counter that they are sensitive to wilderness values in planning their projects, avoiding visitor-use areas and testing the effects of activities on wildlife beforehand. They also mostly believe that disturbances to wildlife and habitat by things like helicopter landings are temporary.\footnote{Brien Culhane, personal communication, Sep. 25, 2013; Oron Bass, personal communication, Oct. 29, 2013.}

These differences in outlook on the appropriate application of wilderness policies and guidelines likely will never be definitively resolved.

The park’s draft GMP includes statements of park policy on wilderness, notably that: “In designated wilderness, natural and cultural resource management activities and research and other administrative uses are consistent with NPS wilderness management policies.” The document also reaffirms the park’s commitment to the minimum requirements concept. To help achieve the goals for designated wilderness, the GMP commits the park to developing a wilderness stewardship plan “to guide
Wilderness on the edge: a history of Everglades National Park preservation, management, and use of these lands.” The development of the plan will depend on future allocations of funding and professional positions in the park.\footnote{Draft GMP, Appendix D, 524; Fred Herling, personal communication, Aug. 22, 2013; Fred Herling, personal communication, Feb. 11, 2011.}

Visitor Use of Wilderness/Backcountry Camping

Well before the 1978 designation of park wilderness, Everglades had begun to develop wilderness or backcountry campsites. The first two, at Graveyard Creek and the Cane Patch, were opened in the winter of 1962/1963. By 1970, the number had grown to 25, and at this writing there are 46 (figure 10-2, Lopez River backcountry campsite). Most of the sites can be reached only by canoe, kayak, or small motorboat. The Ernest F. Coe and Old Ingraham Campsites and the Clubhouse Beach Campsite at the end of the Coastal Prairie are accessible on foot. Several factors influenced the choice of sites. The primary consideration was limiting damage to natural resources, but sites also had to be accessible to maintenance crews in motor barges. Because nearly all areas of higher ground along the Gulf Coast had attracted human settlement for millennia, it was inevitable that many locations selected for campsites contained the remnants of historic structures or archeological resources. Although important known archeological sites seem to have been avoided, no effort was made to avoid sites with remains of white settlement, such as cisterns. To supplement the limited number of areas of higher ground, the park began a program of creating camping platforms on pilings, protected by traditional chickees, open-sided structures with thatched palm roofs. This
gave managers considerably more flexibility in locating campsites. In the 1960s, the chickee sites were meant to accommodate a single camping party and were equipped with picnic tables and cookstoves. Regulations were put in place prohibiting the cutting of vegetation for fires, restricting fires on beach sites to below the high tide line, and requiring refuse to be packed out.\footnote{Jack B. Dodd, Asst. Supt., to Ranger Maxwell et al., Aug. 8, 1962, Everglades National Park, “Notice to Back Country Visitors,” May 1970, EVER 42242, ser. XIII; Northwest District Issues and Goals for the 1995 Squad Retreat, 1995, EVER-00886.}

Interest in backcountry camping grew substantially in the late 1970s and 1980s, and the park took steps to handle more visitors while still protecting resources. Use of the sites was estimated at 8,000 overnight stays in 1980. A voluntary permit system, begun in 1977, was made mandatory in 1983, in part to provide better data on campsite use. Campers could self-register until 1989, when the park began to require application be made to a park employee in the winter season and in summer as well, when staff was available. Because of overcrowding, the park occasionally allowed camping at nondesignated sites. To accommodate more camping parties, the park in 1983 began removing picnic tables at all chickee sites and adding a second chickee at some sites. Recorded overnight stays were 15,469 in 1987, no doubt an undercount because some parties did not get the required permit. The park experimented with placing limits of two nights or a single night at some popular sites. Over time, policy moved toward

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure103.jpg}
\caption{Indian Key backcountry campsite, circa 1968}
\end{figure}
its current contours, where permits must be obtained at either Everglades City or Flamingo no more than 24 hours in advance of a visit. Permits are limited to 14 days, with restrictions of from one to three nights at a single campsite in the winter season. Reservations are made for a particular campsite; an alternate campsite can be used only in case of an emergency (figure 10-3, Indian Key backcountry campsite). For many years there was no charge for backcountry camping; as of this writing there is a $10 processing fee and a $2.00 per person per night charge.\(^{530}\)

**The Wilderness Waterway**

Much of the backcountry use at the park is via marked canoe trails starting at Flamingo or Everglades and along the Wilderness Waterway. The park had two marked canoe trails in the mangrove forest as early as September 1967 and five marked trails in the Flamingo area by 1977: Bear Lake, Hells Bay, Noble Hammock, West Lake and Nine-Mile Pond. The Wilderness Waterway is a 99-mile trail that traverses inland waterways between Everglades City and Flamingo. It was opened in 1968 and has proven tremendously popular.\(^{531}\)

Native Americans for millennia had been using and improving sheltered inland water passages in the Everglades. They also created canals to improve water transportation, notably the Mud Lake Canal in the park. A substantial inland route for boaters had been a goal of park managers since shortly after the park’s establishment, but nearly impassable mangrove forests at several spots seemed an insurmountable obstacle. Richard Stokes, who in 1959 became district ranger for the Gulf Coast District, based at Everglades City, thought otherwise. In the early 1960s, he and other park staff cleared routes through bottlenecks at Alligator and Plate Creeks. There remained a major blockage between Broad Creek and Harney River. Using early charts of the area known as T-charts, Stokes in 1966 began to search for a route. His first effort in August 1966 in the company of Superintendent Roger Allin and Chief Ranger Robert Kerr ended with Stokes and Allin swimming down Broad Creek in life jackets before they were spotted by Ralph Miele in the park plane and rescued after dark. Stokes kept trying (without the superintendent) and by the end of summer 1968, had cleared a connection. The park then began to mark the 99-mile route and add backcountry

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\(^{531}\) Anhinga, Sep. 1967; Chief of Maintenance, ENP, to Supt., Jan. 27, 1977, EVER 22965.
Figure 10-4 Everglades Wilderness Waterway
campsites so a canoeist could make the trip in seven to 10 days (figure 10-4, Wilderness Waterway).532

An important part of making the Wilderness Waterway known to visitors was the 1969 publication of the Guide to the Wilderness Waterway, written by ranger William Truesdell. Truesdell came to the Everglades in 1967 and soon began preparing “strip maps of the entire waterway, section by section, and writing text to accompany the maps.” The narrative “described critical places in the route” and gave background on the natural and cultural history of the territory traversed. The 64-page spiral-bound guide was published through the Everglades Natural History Association partnership with the University of Miami Press; a revised edition was published in 1985. The outdoors community greeted the opening of the waterway with enthusiasm and it received considerable media attention. The Wilderness Waterway has proved enduringly popular. In 2011, Holly Genzen and Anne McCrary Sullivan produced a new guide to the waterway, Paddling the Everglades Wilderness Waterway, which also provides information on previous human use of the areas traversed (figure 10-5, canoeing in backcountry).533

From its inception in 1978, the park’s Wilderness Waterway has been shared by operators of nonmotorized canoes and kayaks and operators of small boats with outboard motors. Widely held definitions of the wilderness experience find the sounds and odors of outboard motors incompatible with that experience. Long-time park volunteer John Buckley believes that canoeers coming to the park use the Wilderness Waterway are often disappointed when they find it is open to motorized boats. In the public meetings conducted to help shape the park’s GMP, some users expressed a wish that motorized and nonmotorized users could be separated. The preferred alternative in the latest version of the park’s GMP calls for the establishment of an Alternative Wilderness Waterway that would offer a more tranquil visitor experience for users of human-propelled craft. The alternative route would incorporate the existing Hells Bay Canoe Trail at its southern end and have its northern end at Everglades City. Most of the route of the Alternative Wilderness Waterway would also receive limited use by motorized boats. Some sections of the alternative route would be restricted to nonmotorized craft where parallel routes for motorized craft exist. The Alternative

532 Richard A. Stokes, ENP, to various media, Dec. 12, 1966; Max Hunn, “Everglades Waterway,” Outdoors 2/1 (Jan. 1970), 32. Stokes wrote that early on Supt. Beard planned to dredge a canal between the upper Shark River and Broad River drainages, but no documentation has been found in support of this.

Wilderness Waterway would have fewer physical markers so as not to compromise views of the scenery and would have GPS waypoints.  

Figure 10-5. Canoeing in the backcountry

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534 John Buckley, interview with Nancy Russell and Alan Scott, March 19, 2011; NPS, Draft GMP, 74.
Chapter 11: Park Science

The management of park natural resources and a park’s scientific activities are closely linked. Although it is now almost axiomatic that any program of resource management must be based on sound science, the NPS was slow to come to this realization. As historian Richard Sellars has shown, the NPS has a long tradition of applying a utilitarian approach to natural resource management. The utilitarian bias has frequently elevated the visitor experience and efficient park administration over science in the management of natural resources. Often in the past, NPS’s top managers have marginalized biologists and other scientists. It has only been since the emergence of a national environmental movement in the 1960s and 1970s that the NPS has accorded science a broader role in park management and operations. This evolution was largely the result of pressure from those outside the Service rather than NPS initiatives. Although it is impossible to make rigid separations, in general, this chapter focuses on the park’s scientific endeavors, while chapter 12 addresses wildlife issues, and chapter 21 deals with the natural resource protection activities of the ranger force.535

Given that biological values were an important factor in the decision to set aside a portion of the Everglades as a national park, the NPS has been more supportive of a strong science program there than at other units. The recurring issues with water supply and water quality in the Everglades beginning in the early 1960s made the need for adequate scientific studies readily apparent. In 1966, Everglades became the second national park to have a natural sciences research plan. Assistant Secretary of the Interior Nathaniel Reed, a South Floridian with a lifelong interest in the Everglades, spearheaded the 1977 creation of the South Florida Research Center (now the South Florida Natural Resource Center). This was a pioneering move within the NPS and gave science a greatly enhanced status at Everglades. Even so, the effort to better coordinate scientific activities in the park and focus them on broader ecosystem studies has been ongoing. Various reorganizations within NPS and Interior have adversely affected the science program at Everglades and other units. Notable among these were the 1993 creation of the National Biological Survey and the subsequent placement of Interior biologists within the U.S. Geological Survey.536

The NPS typically identifies any scientific endeavor in Everglades or other parks as research. The term research has both a general meaning and a more restricted meaning in scientific circles. In general usage, research typically means exhaustive, systematic inquiry or investigation. In scientific circles, the term research often is restricted

to activities carried out under the scientific method. In this usage, research means identifying a question or stating a hypothesis, collecting data and/or conducting experiments, and arriving at a conclusion that answers the research question or confirms, refutes, or qualifies the hypothesis.\textsuperscript{537} In this chapter, research often carries the more general, rather than the specifically scientific, meaning.

Ten years before the park was established, Dan Beard, who would become the park’s first superintendent, undertook the first park-specific scientific inquiries. As an NPS assistant wildlife technician stationed in South Florida in 1937 and 1938, Beard surveyed the area by plane, boat, and automobile and on foot. He compiled a list of proposed studies for the park area, focusing on basic inventories of wildlife and representative plant communities. He also recommended studies of surface water flow and the status of exotic plants and animals. Beard saw the need for more comprehensive ecological studies but felt they would have to wait until inventories had been compiled. Beard’s investigations resulted in his October 1938 *Wildlife Reconnaissance*. This work is primarily descriptive, containing information on physiographic areas and known bird rookeries as well as brief summaries of the status of rare species. The document places considerable emphasis on resource management issues, detailing the effects of various types of human use of the Everglades and offering preliminary suggestions on how those effects might be reversed. Acknowledging that the Service lacked the scientific personnel to conduct needed Everglades investigations, Beard recommended relying on researchers from cooperating colleges and universities.\textsuperscript{538}

**Early Emphases of Park Science**

Once established, Everglades National Park was slow to implement scientific investigations. Superintendent Beard and his staff were preoccupied with securing the park area, curbing illegal hunting, and establishing basic visitor services. It took years for park staff to gain a basic understanding of the natural environment, and they could not be expected quickly to design and implement scientific activities. In addition, science had a low priority and minimal funding throughout the NPS in the 1950s. Director Conrad Wirth was preoccupied with the Mission 66 program, which overwhelmingly emphasized construction to meet visitor needs. It is revealing that in 1958, the entire NPS budget for scientific research, exclusive of salaries, amounted to

\textsuperscript{537} See definitions in *Merriam-Webster’s Collegiate Dictionary*, 11\textsuperscript{th} ed. (Springfield, Mass.: Merriam-Webster, Inc., 2003), 1059, 1112.
\textsuperscript{538} Daniel B. Beard to RDR1, Dec. 28, 1937, WNRC, 79-85-8, box 13; Beard, *Wildlife Reconnaissance*. In addition to surveying the Everglades, Beard was also coordinating the work of CCC camps at state parks in South Florida.
Everglades National Park in the 1950s relied heavily on others to conduct scientific activities in the park. The U.S. Geological Survey (USGS) continued to maintain its water gauging stations in the park. Superintendent Beard attempted to get assistance from U.S. Fish & Wildlife Service (FWS) scientists, but found that they were stretched thin and could offer little help. The park’s first biologist, Joseph C. Moore, came on duty in the fall of 1949 and stayed for several years. Moore worked primarily on inventory and monitoring of bird populations, but also started some preliminary investigations of crocodiles, manatees, dolphins, and squirrels (see chapter 12). Park naturalists, who mainly worked on interpretive programs, also helped with inventory and monitoring. The NPS was very concerned about the future of sportfishing in the park and how commercial fishing affected fish stocks (figure 11-1). In 1951, the park contracted with the Marine Laboratory of the University of Miami for a study of the pink shrimp population in the park. The park was an important spawning ground for shrimp. Shrimp were both a major food source for species of fish sought by sportsmen and the basis of a commercial fishery in the Gulf of Mexico. This was the beginning of a long association between the park and the marine laboratory. In 1957, the park entered into another contract with the laboratory for a multiyear study of marine fish stocks. From 1958 through 1969, researchers interviewed sportfishermen at Flamingo, recording their catches and the amount of time they were out (known as a catch-and-effort study). Long-time park biologist Dr. William B. Robertson later acknowledged that this study was “at the lower limit of sampling reliability.” As early as 1952, biologist Moore thought a permanent marine biologist position was needed in the park.

A second major focus of Everglades science in the 1950s was wading bird and raptor populations and their breeding success. Dr. William B. Robertson began his study of Everglades birds as a University of Illinois PhD candidate in 1948. After working in the park as a fire control aide in the early 1950s and holding term positions, Robertson got a permanent position as a biologist in June 1956. Known to most as

539 Sellars, 164-168; Asst. Sec. Roger Ernst to Congressman Dante Fascell, May 27 1958, NARA II, RG 48, DOI, Office of the SOI, box 327.
540 Some sources state that Dr. William Robertson was the first biologist in any unit of the National Park System east of the Mississippi, but this is erroneous. Determining whether Moore was the first such appointment is beyond the scope of this history.
“Dr. Bill,” Robertson worked in the park until his retirement in 1997. Much of his time was devoted to bird studies, but Dr. Robertson also participated in vegetation studies and emerged as a key source of counsel to park managers and others in South Florida on a host of biological issues. Early on, Robertson recognized the value of long-term databases. The bald eagle study that he began in 1959 continues today as one of the longest continuously maintained databases on any species. His pioneering work on the effects of fire on ecosystems is covered in chapter 15. The early emphasis on studying fish stocks and wading bird populations reflected the then-prevalent NPS tilt toward science that served visitors. Bird watching and sportfishing were among the premier attractions for park visitors, so scientific investigations informing management decisions that would enhance these activities were favored.

1957 Park Research Conference

Superintendent Beard and his staff considered scientific endeavors of sufficient importance to convene a three-day research conference in the park in June 1957. The conference was intended as the first step “toward establishment of a comprehensive research program” in the park.

Figure 11-1. Gamefish stocks were a focus of early research

542 SMR, June 1956; “Pioneering Biologist Discovered Value of Fire,” Miami Herald, Oct. 23, 1997; “William B. Robertson II, Glades Scientist,” Miami Herald, Feb. 2, 2000; Bass interview. Robertson’s greatest legacy may be his 40-year study of terns at Dry Tortugas National Park, but that is a story for that park’s administrative history. The park has named the old Iori Farms bunkhouse/commissary in honor of Dr. Robertson.
Fifty-six outsiders and 15 NPS representatives attended, most of them authorities in the biology, geology, and hydrology of South Florida. Although the emphasis was on the natural sciences, three of the outside attendees and one NPS attendee were historians or archeologists. The vast majority of the academics in attendance were from the Universities of Miami and Florida. Five came from the University of Miami Marine Laboratory. The Florida Game & Fresh Water Fish Commission, the USGS, the FWS, the U.S. Department of Agriculture, the Corps of Engineers, the Central & South Florida Flood Control District, and the Office of Naval Research were also represented. Echoing Ernest Coe’s vision, the attendees passed a formal resolution calling for the inclusion of a section of coral reef off Key Largo in the park. The conference did not entice many outsiders to conduct research in the park, but it did raise the park’s profile in academia and furthered cooperation between outside experts and park scientists and managers.

The succession of drought years that the park experienced beginning in 1962 brought about changes in the park’s scientific focus (figure 11-2, 1960s droughts affected the nesting of great blue herons). The severe stress caused by low water highlighted the need for more hydrological work and more comprehensive ecological studies. Park managers began to realize that a lot more research was needed to understand how varying water levels throughout the year affected Everglades environments and individual species. In July 1959, the University of Miami Zoology Department had started a study of fresh water marsh ecology in the park, but it seems to have been poorly designed and produced little useful information. Faced with severe drought in the winter of 1961/1962, the park decided to have the University of Miami Marine Laboratory review and evaluate a host of existing data in an attempt to estimate the park’s water needs. These studies included J. B. Reark’s work on freshwater marsh fishes discussed below in chapter 12. The park felt that more extensive ecological studies should follow this review and evaluation. At the same time, criticisms of the park science program nationally from the nascent environmental movement led Secretary of the Interior Stewart Udall to commission two evaluations of NPS research from prestigious scientists.

545 Sellars, 200-201; Supt. to RDR1, Feb. 12, 1962, EVER 55853, box 61.
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The 1963 Leopold and National Academy of Sciences Reports

Secretary Udall in 1962 commissioned a study of NPS wildlife management policies and a second study of Service natural history research needs. The principal author of “Wildlife Management in the National Parks” was A. Starker Leopold, a well-regarded professor of biology at the University of California, Berkeley, and son of Aldo Leopold. Released in the spring of 1963, what became known as the Leopold Report strongly recommended that scientific research “form the basis for all management programs” in the NPS. Udall chose the National Academy of Sciences (NASc) to thoroughly examine the Service’s scientific efforts. The chair of the NASc committee and chief author of its report was biologist William J. Robbins of the National Science Foundation. Because of the critical situation at Everglades National Park, Robbins convened a week-long committee meeting in South Florida in January 1963. The committee spent a day touring the park and then held sessions in Coral Gables. The NASc committee’s August 1963 report was highly critical of NPS science efforts. It strongly urged that park science adopt an ecosystems orientation and expand its focus beyond

546 Sellars, 215.
charismatic megafauna. The NASc report echoed the findings of a largely ignored 1960 internal report written by Dan Beard (in WASO at the time) that lamented the inadequacies of NPS science. In the view of historian Richard Sellars, NPS management reacted defensively to the NASc report and ensured that it got limited distribution. Nonetheless, the Leopold and NASc reports were a milestone for the Service and began the slow process of elevating the status of science in the parks and pushing it toward a more ecological approach.\footnote{Sellars, 169-170, 215-217; SMR, Jan. 1963; “Glades Park Needs Told,” \textit{Miami Herald}, Jan. 16, 1963. The NASc report was “A Report by the Advisory Committee to the National Park Service on Research,” Aug 1, 1963.}

On the national level, the NASc report led to the 1964 establishment of a division of natural science studies in the NPS Washington office. A second result was the preparation of a natural science research plan for Everglades National Park, the third such plan ever prepared within the NPS.\footnote{Isle Royale National Park and Sequoia-Kings Canyon National Park preceded Everglades.} Park scientists, NPS Chief Scientist George Sprugel Jr., and others worked on the plan in 1965 and 1966. Several academics, including Archie Carr and John H. Davis of the University of Florida and Clair P. Idyll and Durbin C. Tabb of the University of Miami, helped prepare the plan. Released in September 1966, the plan constituted, rhetorically at least, a firm commitment to an ecologically based research program. The plan stated: “Long-range research efforts in the Park should build toward an eventual understanding of the organization and interrelationships of the various [natural] communities represented [emphasis in original].” Nevertheless, the plan recognized that crisis conditions in the park often might require management actions in advance of research results, noting that “priority should be given to projects that have a direct and immediate bearing on the survival of the features which the Park was established to preserve.” Further, staffing and funding limitations were recognized as impediments, and no suggestions of additional funding sources were included. The plan made a clear distinction between natural history surveys and research. It recognized the importance of surveys, but branded them “more in the province of housekeeping duties of management than research.”\footnote{William B. Robertson Jr, George Sprugel Jr, Lowell Sumner, ed., “Everglades National Park Natural Sciences Research Plan” (Washington, D.C.: NPS, Sep. 1966).}

The 1966 natural science research plan was followed by a 1967 Everglades National Park Resource Management Plan. This was a pilot effort in the NPS, but apparently never was used by the park. Neither plan resulted in substantially more funding for park science or in freeing the park’s scientists from paperwork, resource management, or advisory tasks that pulled them away from their research. Longstanding inventory and monitoring programs, focused on bird populations, mostly continued. Dr. Robertson also studied and wrote about the effects of 1960’s Hurricane Donna on vegetation and wildlife, and in late 1966, he was able to hire John Ogden, just the third
wildlife biologist in the park’s history. The USGS expanded its efforts in the 1960s to include ecological research in three Everglades environments: open glades, alligator holes, and the brackish zone. This research apparently was limited to correlating the presence of aquatic species with variations in water cover, salinity, and other properties. The USGS also undertook an effort to trace vegetation changes by comparison of aerial photographs from 1940 and 1964. Scientists from the University of Miami continued to work in the park, for a time maintaining research stations on Pigeon Key and in the old Iori Farms bunkhouse.550

In 1969, Bill Robertson offered this summary of the first twenty years of park science:

[T]he present [science] program just grew (though not very far) and was shaped by its environment, rather than being carefully planned according to the priority of needs. The “program” has always consisted of a very few people with very limited funds. What we’ve done is no measure of what we thought was needed, but rather a measure of the realistic possibilities.551

Everglades National Park scientists were involved in the South Florida Environmental Project, an obligation undertaken by the Department of the Interior as a result of the January 1970 Everglades Jetport Pact (see chapter 8). Scientists from a number of agencies worked on the study, which ultimately produced 51 reports in the first half of the 1970s and a 1976 summary report. Beyond establishing criteria for the selection of a new site for the jetport, the project was meant to provide a comprehensive series of reports on the broader South Florida ecosystem. Park biologists Bill Robertson and John Ogden worked on some of the study’s reports. Gary Hendrix, a recent University of Miami PhD in marine biology, was a co-author of the summary report.552

By the early 1970s, the park had resource management coordinator position, which had responsibility for coordinating science efforts. The park’s research budget had grown somewhat, allowing it to hire Richard Klukas as a terrestrial biologist and Gary Davis as a marine biologist. The resource management coordinator, L. Lee Purkerson, moved to the NPS Washington office in August 1974, and Gary Davis was acting resource management coordinator until November, when Gary Hendrix took on that position. John Odgen also left in 1974 for a position with the National Audubon Society and was replaced by James Kushlan. Some of these personnel changes appear

to have been engineered by Nathaniel Reed, who took a very active interest in Everglades National Park after his 1971 appointment as assistant secretary of the interior for fish, wildlife, and parks. Reed recalls that Audubon was in great need of an expert biologist and that he encouraged John Odgen to apply for the position.553

Creation of the South Florida Research Center

In the 1970s, Nathaniel Reed accomplished a transformation of the research program at Everglades National Park. Reed, a prominent Florida Republican, had served as environmental advisor to Claude Kirk, the first Republican governor of Florida since Reconstruction. In 1971, President Nixon appointed Reed to the assistant secretary position, under Secretary of the Interior Rogers C. B. Morton. There were three NPS directors during Reed’s tenure: George B. Hartzog Jr. (to December 1972), Ronald H. Walker (January 1973 to January 1975), and Gary Everhardt (January 1975 to May 1977).554 Reed had first-hand knowledge of the environmental problems in the Everglades and worked to beef up the park’s science program. In 1974, he began pressing for a bonafide research center in the park with an adequate budget. Reed and Director Everhardt visited the park in April 1975, then Reed requested a report from a team headed by NPS Chief Scientist Theodore W. Sudia. After visiting the park in September, Sudia’s team called for a substantial increase in the park’s science effort, recommending an annual budget of $2.975 million and 21 permanent positions. At the time, the park’s research efforts involved eight permanent professional positions and a $300,000 annual budget, including the hydrology program, which was separate from the natural science program. Everglades Superintendent Jack Stark thought that Sudia’s proposed program was too ambitious and reflected the biases of the study team. The superintendent welcomed the idea of getting more equipment, facilities, and support staff, but wanted no additional permanent scientist positions in the park. Director Everhardt passed these views along to Reed.555

Nathaniel Reed saw Stark’s position as typical of Park Service managers, few of whom had a science background. Most superintendents had advanced through the ranger ranks and they zealously guarded their management prerogatives. All superintendents

554 Ronald Walker was a former White House aide with no background in land management or conservation; Nathaniel Reed was the de facto director of the NPS during Walker’s tenure.
555 Reed interview; SAR, 1975; Sellars, 236-237; Asst. Sec. Reed to Dr. Sudia, Aug. 8, 1975; Assoc. Dir., Park System Mgmt., to Dir., Oct. 20, 1975; NPS, WNRC, 79-85-8, box 10; Supt. to RDSE, Oct. 10, 1975, EVER 42242.
and regional directors were white males, and the last thing they wanted was a young PhD scientist, most especially a woman, having input into decision-making.556

Unhappy with the NPS response to Chief Scientist Sudia’s recommendations, Reed decided to get an evaluation from distinguished outside scientists. He called on George Gardner, a former special assistant in Interior who at the time was working on a PhD in ecology at the University of Florida. Gardner was joined by another University of Florida scientist, Ariel E. Lugo, who had worked on the South Florida Environmental Project.557 Together they prepared a report, *An Assessment of Research Program Needs and Priorities for Everglades National Park*, dated January 1976. The Gardner-Lugo report found that the park was at a critical point because of the rapid growth of South Florida and the intensifying competition for water. Further they judged “the Park’s research program unable to counteract these threats to the Park with scientifically accurate, relevant information on which to base programs to defend the Park’s interests.” Gardner and Lugo called for a substantially expanded and reorganized research effort. They proposed a four-part research program:

1. Water-related research, including the study of delivery mechanisms for water to the park, water quality monitoring, and flow measurement. This was seen as the top research priority.
2. Studies of “hot spots” within the park, such as Shark River Slough, the headwaters of Taylor Slough, Canal C-111, and the Hole-in-the-Donut.
3. Community or mosaic ecosystem studies that would go beyond earlier “species by species descriptive approaches.”
4. General studies to include completion of fundamental resource inventories, mapping of vegetation, soils, and topography, and a study of fire ecology.558

Other recommendations included a comprehensive library of all park-related research, an outside scientific advisory board for the park, an internal park research and resource management policy group, an annual Everglades science symposium, an environmental management data system, and a park research center either in a new building or a repurposed existing building.559

Reed pressed the NPS to implement the Gardner-Lugo proposals throughout 1976, often finding Director Everhardt and his staff less than enthusiastic and responsive. The director wrote Reed in April 1976 that the Service was in basic agreement with the report’s recommendations, but Reed in June complained to Everhardt that he had yet to receive a “fully fleshed out plan” for implementing them. The Florida

556 Reed interview.
557 Asst. Sec. Reed to Dir., Dec. 9, 1975, NPS, WNRC, 79-95-8, box 10.
559 Gardner and Lugo, ix-xi.
congressional delegation got a $300,000 add-on for the Everglades science center for FY1977, and the NPS reprogrammed another $160,000.\textsuperscript{560} This provided a budget of $695,000 for what was christened the South Florida Research Center. The NPS agreed with the report’s suggestion that the new center serve Biscayne National Monument as well as Everglades and Fort Jefferson. The center’s FY1978 budget was set at $1.4 million and remained a separate line item, distinct from natural resource management funding. Reed was fortunate to accomplish all of this before the November election, which denied Gerald Ford a term of his own and meant that Reed’s days as assistant secretary were numbered. Not long after the election, NPS officials indicated that they might try to scale back the mission of the research center. In December, the regional director wrote newly installed superintendent John M. Good that he wanted the park’s research program to be “results oriented, i.e., research pointed toward application to management program [sic]. I was gratified that you share this desire and hope to keep long-term research efforts to a minimum.”\textsuperscript{561} It is a testament to Nat Reed’s forceful personality and bureaucratic savvy that he was able to permanently establish the science center at the tail end of the Ford administration. Once out of office, however, he could not control its funding level.

Beginning in the fall of 1976, the park moved to get the research center up and running. Gary Hendrix’s title changed from resource management coordinator to research director.\textsuperscript{562} The new center had five program areas, plus an administrative branch. The five scientific programs were wildlife ecology, plant ecology, marine ecology, fire ecology, and hydrology. At about this time, Frank Nix, whose position as hydraulic engineer had always reported to the superintendent, retired. Hydrology then became one of the center’s program areas, with Pete Rosendahl as its head. James Kushlan and Gary Davis, already at the park, had the wildlife and marine programs, respectively. Hendrix then hired Lloyd Loope to lead the plant ecology program and Dale Taylor for fire ecology.\textsuperscript{563}

As center staff was added, some were given offices in the headquarters building and others got trailers in the Pine Island complex. The NPS considered constructing...
a new building for the center, but decided to use the old Iori Farms building, an option that had been mentioned in the Gardner-Lugo report. The NPS Denver Service Center got the job of converting the building and astounded park staff with some of their initial suggestions. The scientists at Everglades were able to make some changes to the plans for the building and grounds, notably persuading the folks from Denver that native plants would thrive more readily than blue spruce trees. Park staff also fought to have windows placed in the building, and ended getting only very narrow, vertical ones. By early 1979, director Hendrix believed that the center was successfully established as a “multidisciplinary research program for the South Florida parks.”

The remodeled Iori building contained a wet lab, a dry lab, library, computer center, conference room, 15 offices, and study areas for 20 technicians. The permanent staff has risen to 14 and the budget for FY1979 was $1.346 million (figure 11-3, touting the new science program).  

Having little experience with scientific research, the NPS lacked policies on publication. Center director Hendrix established a program of center technical publications to disseminate important data and results that were not appropriate for peer-reviewed journals. Centers scientists also were encouraged to submit articles to journals, and Hendrix reviewed manuscripts from staff before they were submitted to journals. The South Florida Research Center was a pioneering effort within the NPS and it was important to show its value through published work.

The initial team of program heads, scientists, and technicians was excited about being part of this new NPS commitment to science and the prospect of better understanding the South Florida ecosystem. John Good, Everglades superintendent from October 1976 to February 1980, had been selected for the post by Assistant Secretary Reed because his training was as a biologist and he supported science-based management. By all accounts, the first four or five years of the center were a golden age, marked by productive collaboration among the staff. The concept of systems ecology, which emphasizes a holistic approach to interactions among species and systems, was gaining ground in the 1970s. Many of the young scientists who joined the research center in its early years, James Kushlan in particular, brought this approach to their work. Within the center, wildlife ecology and hydrology were the biggest programs; at one point wildlife ecology had eight or nine technicians, more than any other program (figure 11-4, checking on a tranquilized panther). Each program competed for funding and those decisions were made by the research director following informal discussions.

565 Bass and Hendrix interviews. Reports from the South Florida Research Center and the South Florida Natural Resource Center are catalogued as EVER 42242 in the South Florida Collections Management Center.
In 1981, the NPS Southeast Regional Office initiated an evaluation of the first four years of the research center. A three-member team concluded that the research center provided good research, was well managed, and “relatively” well funded. Center staff chronically believed they lacked the funding needed to accomplish their missions, but found themselves the object of considerable envy among NPS scientists from other areas who got even less. The report’s authors believed that the center needed to do more to achieve a truly “integrated ecosystems approach.” Existing research was found to be focused primarily “on structural aspects of ecosystems” with much emphasis on inventory and monitoring. “A total or integrated ecosystem approach is highly desirable and will require better integration and some reorientation of research programs.”

After several years, tensions arose among the center staff. These tensions seem to have had their origins in professional differences about the volume and timing of water deliveries to Everglades National Park. James Kushlan’s work led him to believe with the program leads.

566 Gary Davis, interview by author, Aug. 1, 2012; John Good, interview by author, Sep. 6, 2012; Hendrix, Kushlan, and Reed interviews.

that the annual winter drying out of the ridge and slough areas served to concentrate prey in pools and that the park was asking for too much water, to the detriment of wildlife. Pete Rosendahl’s investigations and modeling of water flows prior to the construction of the Central and Southern Florida Project led him to believe that pre-project flows to the park had been substantially larger than what the park was getting circa 1980. Research Director Hendrix and Superintendent John Morehead (May 1980 to February 1986) supported Rosendahl’s view. Additionally, there were disputes between James Kushlan and park management over publication in peer-reviewed journals and the ownership of data collected by a scientist in government employ. Evaluating the various positions in these disputes is beyond the scope of this history; what is relevant is that the disputes led to acrimony and dissention within the research center, which clearly lessened its productivity for some years.568

568 For additional insight, consult the transcripts of the author’s interviews with Gary Hendrix, James Kushlan, and John Morehead in the park’s archives.
The center’s functioning was also adversely affected by the failure of its funding to keep up with inflation and the rise in salary levels as scientists advanced in their careers. The center was funded at $1.35 million in fiscal year 1978 and $1.47 million in fiscal year 1988. Just to keep up with inflation, the 1988 figure would have needed to be $2.45 million. In the early 1980s, the NPS adopted a compensation system for its research scientists known as research-grade evaluation. Under this system, promotions were dependent on publication in peer-reviewed journals. Scientists who were well-published rose rapidly in grade, adding to the center’s salary costs. Essentially level funding for the center that did not keep up with inflation limited its effectiveness. In some cases, for example, when a senior scientist left, he was replaced by a less experienced scientist with a lower salary cost.\(^{569}\)

In 1988, Research Director Hendrix took a leave of absence before moving to the NPS Southeast Regional Office, and center marine biologist James Tilmant was acting director for a time. Superintendent Michael Finley (July 1986 to August 1989) invited Michael Soukup, a limnologist (specialist in freshwater systems) and chief scientist in the NPS North Atlantic Region, to become center director. Soukup understood that the center had gone through a troubled period and sensed that it had become “more of a technician operation and a routine monitoring kind of site rather than a research site.” He liked a challenge and agreed to take the position. Acting U.S. Attorney Dexter Lehtinen had filed the water quality lawsuit against the state in October 1988 (see chapter 9). Soukup and center staff immediately found themselves caught up in supporting the government position in the case. The center staff was divided in its opinions on whether the lawsuit was a good move or a distraction that kept scientists from other research. In 1990, the research center completed a move from the remodeled Iori building to the former headquarters building of the Nike base, which had been turned over to the park and named the Daniel Beard Center.\(^{570}\)

The South Florida Research Center achieved some notable results. The work of center scientists was an important factor in convincing Congress to approve the Everglades National Park Protection and Expansion Act of 1989. Studies of the fish and invertebrate populations of the northwest versus the northeast portions of the Shark Slough showed that water flows in the northeast, then outside the park boundary, had seriously declined. Superintendent Finley was then able to use this data to back the

\(^{569}\) SAR, 1978, 1988; Michael Soukup, interview with author, July 25, 2012. James Kushlan believes that PhD scientists who left were replaced with less-credentialed scientists because the latter were less likely to assertively press for science-based management decisions. Kushlan interview.

\(^{570}\) SAR 1988, 1990; Hendrix and Soukup interviews. In the late 1980s, Superintendent Michael Finley removed several center scientists from research-grade evaluations because the system did not provide credit for center-published technical reports. Research Dir. Gary Hendrix to Program Managers, June 29, 1987, EVER-00470.
argument that the East Everglades needed to be added to the park and water flows there restored.\textsuperscript{571}

In 1991, the NPS announced a reorganization of the research center along functional lines. The new program areas were:

- Inventory and monitoring
- Data management
- Ecosystem analysis and modeling
- Resource management and science applications
- Research administration

Funding for the center had risen only to $1.8 million by 1991. The park repeatedly requested a base funding increase for the center of at least $1.1 million, but was unsuccessful.\textsuperscript{572}

The scope of the center’s responsibilities evolved during its first 15 years. The bulk of its research was conducted within Everglades National Park, but it also served Biscayne, Big Cypress, and Fort Jefferson. By the late 1980s, both Biscayne and Big Cypress had added scientific positions, and the center was focused almost exclusively on Everglades. As previously stated, there is considerable overlap between natural resource management and research, especially in the realm of inventory and monitoring. When the center was first established, resource management remained within the resource and visitor protection division. In the late 1980s, the park’s resource management program was largely folded into the center, in a three-year process that was completed in early 1990. Because of the fuzzy line between resource management and research, superintendents had some leeway in allocating the center’s funding. From time to time, there have been charges that too much of the center’s time was devoted to resource management or that center funding for inventory and monitoring was diverted to the resource and visitor protection division, but not actually so used. In early 1993, for example, Nathaniel Reed observed “Funds intended for research were diverted to ranger and visitor protection. Researchers’ time was diverted to resource management tasks.”\textsuperscript{573}

The center and its scientists played an important role in a major 1989 gathering of Everglades scientists, which resulted in a ground-breaking Everglades publication. Sponsored jointly by the NPS and the South Florida Water Management District, the week-long Everglades symposium on Key Largo brought together more than 200 scientists. John Odgen, who had returned to the research center from the National

\textsuperscript{571} William Loftus, interview by author, June 13, 2012; Finley interview.
\textsuperscript{572} SAR 1992; SFRC, Target Park Initiative for FY92 Funding Increases, revised Oct. 1, 1991, EVER-1707.
\textsuperscript{573} SAR, 1987; Nathaniel Reed to SOI Bruce Babbitt, Feb. 3, 1993, NPR papers, box 5.
Audubon Society, and Steven M. Davis of the district cochaired the event. In Ogden’s words, it was “the first really large-scale organized effort to pull together all of the scientists who had worked in the Everglades and to really understand what we know and do not know about the system.” Papers from the symposium were published in 1994 in *Everglades: The Ecosystem and Its Restoration*, edited by Ogden and Davis. The book had a strong interdisciplinary approach and was a milestone in advancing understanding of the ecology of the Everglades.574

### The Advent of the National Biological Survey

President Bill Clinton’s Secretary of the Interior, Bruce Babbitt, had some innovative ideas about the role of science in managing public lands. In March 1993, Babbitt announced his intention to create a National Biological Survey (NBS). He saw the NBS as an ecological counterpart to the U.S. Geological Survey (USGS), which long had conducted scientific research in the physical sciences. Among other things, Babbitt wanted to begin a systematic survey of the nation’s ecosystems on both public and private land. Biological scientists working for agencies within Interior (the NPS, FWS, etc.) would move into a separate branch, the NBS, making them more independent of managers and better able to carry on research without pressure to support management’s views. Babbitt’s move produced significant backlash. Leaders of the property rights movement pounced on the idea of government scientists roaming private property to protect endangered species and provoked a storm of protest. Babbitt also failed to adequately consult with congressional leaders on his goals, and Republicans, who took control of the House in January 1995, opposed funding the new agency. Interior renamed the agency the National Biological Service, but this failed to satisfy conservatives. In a compromise with Congress, Interior in 1996 eliminated the NBS as a separate agency and moved its scientists into a new division within the USGS, the Biological Resources Division (BRD).575

As a result of the formation of the BRD, most of the scientists at the research center became employees of the USGS, although they remained duty stationed at Everglades. It was in this same period that the South Florida Research Center became the South Florida Natural Resource Center, clearly an attempt to shield it from conservative critics who opposed the idea of Interior doing “pure” research. A handful of scientists, including wildlife biologist Oron “Sonny” Bass, remained as park, rather than BRD, employees. At a national level, some park superintendents complained that...
the removal of research scientists to the USGS deprived them of needed expertise to guide their management decisions. As Michael Soukup has pointed out, park superintendents did not always listen to what staff scientists told them, but they certainly did not want to see those positions taken away and placed under another agency. This dilemma was a major impetus for the expansion of the system of cooperative park study units (CPSU) at universities. CPSU’s, which later were renamed cooperative ecosystem studies units (CESU), were conceived as a way to provide management-oriented technical assistance to superintendents and take advantage of the extensive resources available at universities. In 1993, center director Soukup spearheaded the formation of a CPSU involving both the University of Miami and Florida Atlantic University.576

**The Restudy and the Comprehensive Everglades Restoration Plan Shift the Center’s Role**

The whole saga of the National Biological Survey/National Biological Service/Biological Resources Division was a distraction for the staff at the South Florida Natural Resource Center (SFNRC). At the same time that organizational drama was playing out, Secretary Babbitt was moving to make restoration of the Everglades ecosystem the central environmental priority of the Clinton administration. In 1995, Robert Johnson, a hydrologist who had been at the center since 1983, was named center director. As the Corps of Engineers moved though the reconnaissance and feasibility study phases of the restudy of the Central and South Florida Project, the budget and staff of the SFNRC grew. The park’s fiscal year 1997 budget included $3.36 million for science and natural resource management. From 1996 through 1999, park scientists played important roles in advising on and critiquing the feasibility study, leading to the 2000 enactment of the 2000 of the **Comprehensive Everglades Restoration Plan (CERP)**. The center’s role in the development and progress of the CERP is treated in more detail in chapter 28.577

Prior to the passage of the CERP in 2000, Congress in 1997 established the Critical Ecosystem Studies Initiative (CESI). CESI was created to support ecosystem restoration throughout South Florida. The Everglades superintendent manages the CESI, which is divided into four program areas:

1. **Baseline Research.** Baseline information helps to determine what should be monitored and factors into simulation modeling.
2. **Long-Term Monitoring.** Projects in this area evaluate the status of particular species and ecosystems, allowing the assessment of changes over time.

576 Michael Soukup, interview by author, July 25, 2012; Bass interview.
3. Simulation Modeling. Predictive modeling is an important tool for planning and evaluating proposed modification to the Central and Southern Florida Project.

4. Environmental Assessments. Employing information and design ideas from the other three program areas, assessments lead to the development of decision-support tools for managers.\(^{578}\)

The establishment of the CESI and the implementation of the CERP brought an unprecedented level of scientific attention to the Everglades ecosystem. They also brought about a sizable increase in funding for Everglades science. Scientists look back on the early 2000s as halcyon days. Combined CESI and CERP implementation funding reached $9.5 million in fiscal year 2002, a figure that has not since been reached.

Since 1997, more than 200 projects have been funded through the CESI. NPS staff conduct some of these projects, while many are conducted by the USGS, the EPA, NOAA, the FWS, and scientists from universities. CESI funding was $12 million in fiscal years 1998 and 1999, which scientists look back on as something of a golden age. Since 2004, funding has been in the $3.8 to $4 million range.

By 2003, the center's 70 employees could no longer be accommodated within the park. At the time, NPS policy discouraged new construction in parks for anything but visitor services. The center worked with the Government Services Administration to find space in an office building on Krome Avenue in Homestead. The center completed its move to the new location in May 2003 and held a dedication in July.\(^{579}\)

Although the South Florida Natural Resource Center continued its many other responsibilities, after 2000, research and monitoring in support of Everglades restoration became its primary focus. As of this writing, the SFNRC receives about $26 million in funding from operations of the National Park Service (ONPS), CERP, and the Critical Ecosystems Studies Initiative (CESI). ONPS largely funds the natural resource management staff, while CERP funds the ecosystem restoration staff. The CESI funding supports administrative functions and helps fund ecological monitoring and the Office of Ecosystem Restoration. Staff working on ecosystem restoration issues are at Krome Avenue, while those devoted to resource management are at the Beard Center in the park. The physical separation of the resource management staff from the ecosystem restoration staff is less than ideal in terms of casual interactions, those “hallway conversations” prized by scientists for sharing of ideas. The center also has water quality staff at the Arthur R. Marshall Loxahatchee National Wildlife Refuge, marine scientists at the Florida Bay Interagency Science Center on Key Largo (see chapter 13), and staff at Dry Tortugas (figure 11-5, modular laboratory building at Florida Bay Interagency Science Center). Given the nature of the CERP, the ecosystem restoration

\(^{578}\) NPS CESI website, [http://www.nps.gov/ever/naturescience/aboutcesi.htm](http://www.nps.gov/ever/naturescience/aboutcesi.htm).

staff has extensive contact with other agencies and spends a fair amount of time on the road. The SFNRC remains by far the largest scientific research operation within the NPS.\textsuperscript{580}

As of this writing, the SFNRC is organized into four program areas:

1. Inventory and Monitoring. This program tracks the status and trends of key natural resources: hydrology and climate, vegetation, aquatic resources, and important indicator species.
2. Natural Resources Management Program. The program is concerned with the control of exotic species and the restoration of disturbed areas, notably the Hole-in-the-Donut.
3. Applied Science Program. This program undertakes internal and external research to fill information gaps related to Everglades restoration.
4. Restoration Assessments. The program provides scientific and technical contributions to restoration projects and programs and participates in interagency teams.\textsuperscript{581}

Much of the work of the SFNRC involves monitoring and assessing various projects aimed at restoring the Everglades. These projects include raising the Tamiami Trail, the operation of stormwater treatment areas, and the projects that are

\textsuperscript{580} Johnson interview; Carol Mitchell, interview by author, June 1, 2012.
\textsuperscript{581} Briefing Statement, South Florida Natural Resources Center at Everglades National Park, Jan. 7, 2010, EVER 22965.
part of the Central Everglades Planning Project (CEPP) (see chapter 28). The center continues hydrological and biological monitoring efforts that allow assessments of Everglades restoration efforts. These monitoring efforts focus on water quality, water level, and water flow, as well as fish and macro-invertebrate communities and vegetation communities. The SFNRC also does work on threatened and endangered species, exotic species, and the projected effects of climate changes. Many projects involve the extensive use of computer modeling.582

Chapter 12: Wildlife, Native Plants, and Endangered Species

The attitude of park managers toward the plants and animals of the Everglades has shown an evolution. The mandate in the 1934 act to preserve intact the “unique flora and fauna” has been variously interpreted through the years as changes in scientific thinking gradually affected management attitudes. Park promoters and early park managers understood that certain species, such as wading birds, alligators, and royal palms, were central to the park’s visitor appeal (figure 12-1, Cuthbert Lake Rookery). Not surprisingly, these species were a focus of early monitoring and protective efforts. With its limited resources, the park began the basic task of inventorying species and learning their behaviors and the threats to them. Many of these species had scarcely been studied at all prior to the park’s establishment. As economic expansion and population growth in the 1950s and 1960s changed the face of America, scientists outside the Service saw that certain species were threatened with extinction. Rachel Carson’s warnings in *Silent Spring* (1962) about the precarious status of some species, notably the bald eagle, were a wake-up call for many. The growing ecological movement led to the passage in 1973 of the Endangered Species Act. The law placed certain responsibilities on federal land managers and initially fostered a single-species

Figure 12-1. Cuthbert Lake Rookery
focus. Simultaneously, ecologists were gaining a greater understanding of biodiversity, species interdependency, and the critical role of habitat size. This eventually led the Department of the Interior to focus more on multi-species recovery efforts. It also influenced park managers to adopt a landscape-level approach to species protection, one that transcended political boundaries. These evolving scientific understandings came into play in the development of the CERP in the 1990s. Although CERP had to satisfy many competing interests, it was one of the first plans to approach ecosystem health (and hence species preservation) at the level of the landscape.

**Early NPS Evaluations of Everglades Biota**

Even as the enabling legislation for Everglades National Park was making its way through Congress, George M. Wright, head of the NPS Wildlife Division, observed that “the wild life [sic] of the Everglades is a paramount reason for making a national park of this area.” As has often been remarked, the Everglades lacked the dramatic geological features of the western parks, and wildlife was seen as the main attraction for visitors. A handful of scientists in the 1930s looked forward to Everglades National Park as a subtropical biological preserve. This broad vision of the park as a preserve was shared by only a few in the scientific community and had made no headway among NPS management. Dan Beard’s 1938 *Wildlife Reconnaissance* addressed physiographic regions, but not wildlife habitat per se. He devoted 27 pages to the area’s rare species, mostly the fauna. Species that Beard discussed included the Florida panther (which he called the Florida cougar), the manatee, the great white heron, the roseate spoonbill, the Everglade kite, the alligator, and the crocodile. Beard expressed the greatest concern for the crocodile, which he feared might become extinct on the mainland within five years if not protected. The only rare flora that he discussed were the royal palm (*Roystonia regia*) and the Everglades palm (*Acoelorrhaphe wrightii*), which Beard called the saw-cabbage palm.

Following establishment in 1947, Beard and his staff worked to gain an understanding of the populations and ranges of park fauna and flora and provide a wildlife show for visitors at carefully selected locations. Beginning in January 1949, the park chief naturalist prepared a monthly report that included a section on research and observation. A sample entry: “On the 21st of the month, Smooth-billed Anis, (*Crotophaga ani*) were observed along the trail over Taylor Slough. This is the first record from the park area since 1918.” The nine projects in Park Biologist’s Joseph Moore’s work

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583 Beard devoted 5-1/2 pages to the flamingo, although nothing indicated that the bird had nested in Florida in the historic period.
584 George M. Wright to Dir. Albright, Mar. 8, 1933, NARA II, RG 79, NPS CCF, box 914; Beard, *Wildlife Reconnaissance*, 63-89.
Plan for fiscal year 1950 indicated how much basic biological information was lacking. Moore hoped to address:

- Plant community dynamics
- Alligator and crocodile census
- Sea turtle reproduction
- Manatee range and breeding
- Vectors of communicable disease
- Small mammal density
- Fox squirrel ecology
- Bird rookeries
- Bird roosts and feeding grounds

A major first step in giving visitors a look at Everglades wildlife came with the January 1950 opening of the elevated Anhinga Trail at Royal Palm Hammock (see chapter 20). Protecting species from human depredation was also a key part of the mission; that story is covered below in chapter 21.

Thanks largely to efforts of Dr. Bill Robertson, data sets on bird species were begun in the 1950s that have been maintained for decades. As park biologist Oron “Sonny” Bass has put it, “Bill always had the foresight to realize the value of long-term databases. Our eagle database started in 1959 [1958/1959] and continues today.” Another important ongoing effort was the annual Christmas bird census at Coot Bay. This began in December 1950 under the sponsorship of the park and the Tropical Audubon Society and has been maintained ever since. These counts provide a decades-long series of observations of resident and visiting species. The 1978 count, for example, recorded 156 species, nine of them rare or unusual.

**The Impact of the Endangered Species Act**

The 1973 Endangered Species Act (ESA) was the first federal legislation to impose significant procedural requirements related to imperiled wildlife on federal agencies. It was preceded by more limited legislation in 1966 and 1969. The 1966 Endangered Species Preservation Act authorized the Secretary of the Interior to compile a list of species threatened by extinction and encouraged all federal agencies to protect such species. This act was amended in 1969. The first listings under the 1966 act...

President Richard Nixon signed the Endangered Species Act (ESA) on December 28, 1973, after Congress had approved it on a broad bipartisan basis. It was the most comprehensive and stringent of the flurry of environmental laws passed in the 1970s, and most members of Congress did not understand its implications. The act’s stated purpose was to conserve the ecosystems that endangered and threatened species depended upon. The act defined endangered as “in danger of extinction throughout all or a significant portion of its range.” It defined threatened as “likely to become endangered within the foreseeable future.” The ESA set up a three-step process under which the status of a species first would be evaluated. If it was determined to be endangered or threatened, its critical habitat would be defined, and finally a species recovery plan formulated. Under current regulations, recovery plans are to contain “objective, measurable criteria” for measuring progress toward a species’s recovery. The National Marine Fisheries Service, a branch of the National Oceanic and Atmospheric Administration (NOAA), administered the act for marine species. The U.S. Fish and Wildlife Service (FWS) was responsible for all other species. Once a species was listed as endangered, federal agencies were required to seek a biological assessment from the appropriate agency prior to any action that could potentially affect the species. Private individuals were prohibited from killing, harming, harassing, or transporting endangered wildlife species. Under the original act, this prohibition was absolute and included a ban on harming wildlife habitat. Endangered plants enjoyed less protection; their transport was prohibited, but they could be freely disturbed on private property unless a federal action (typically a permit) was involved.\footnote{588}{Joe Roman, *Listed: Dispatches from America’s Endangered Species Act* (Cambridge, Mass.: Harvard University Press, 2011), 51-53; Donald C. Baur and William R. Irvin, ed., *Endangered Species Act: Law, Policy, and Perspectives* (Chicago: American Bar Assn., 2002), xi. Other 1970s acts were the Clean Air Act, 1970; the Water Pollution Control Act, 1972; the Marine Mammal Protection Act, 1972, and the Fishery Conservation and Management Act, 1976.}

A 1982 amendment to the ESA set up procedures that allowed private landowners to engage in “incidental” takings of wildlife or wildlife habitat if they provided mitigation. The FWS would consider habitat conservation plans that minimized or mitigated damage “to the maximum extent practicable.” The plans often involved the conservation or purchase of other habitat by a landowner to compensate for the lost habitat. If FWS found the plan biologically acceptable and financially sound, it would issue an incidental-take permit, allowing a project to go forward and protecting the
landowners from penalties under the ESA. Environmental groups from time to time have questioned the adequacy of some habitat conservation plans. The ESA had profound effects on the management of wildlife in national parks and elsewhere. As of this writing, approximately 20 endangered or threatened animals and two endangered plants are found in Everglades National Park. Most of the endangered animals that breed within the park are individually considered below. Because of their expertise, park and research center scientists have been called upon to serve on recovery teams for species. Park scientists also serve on interagency bodies created to assist in species conservation and recovery. The ESA and the National Environmental Protection Act require reviews of the effects on endangered species when a project involves federal funding or a federal permit. Because a great deal of private development in South Florida involves draining wetlands and thus a permit from the U.S. Army Corps of Engineers, the provisions of the ESA frequently come into play. The park comments on permit applications to the Corps. The FWS is a sister agency of the NPS within the Department of the Interior. The missions of the two agencies overlap but are not identical. At times, biological assessments concerning endangered species from the FWS have complicated management actions contemplated by the park or other agencies.

State Regulations on Threatened and Endangered Species

In June 1999, Florida established its own endangered and threatened species list. The Florida Fish and Wildlife Conservation Commission maintains the listings. Florida recognizes two levels of threat: endangered species and species of special concern.

Biodiversity and Conservation Biology

At about the same time that the ESA was under consideration, something of a sea change was taking place among ecologists and some land managers. From the 1960s through the 1980s, a great deal was learned about biological diversity at multiple levels (genetic, species, ecosystem) and the dynamic nature of ecosystems and landscapes. An increasingly sophisticated set of tools, notably remote sensing, computer modeling, and geographical positioning systems, became available. These developments, coupled with a growing awareness of ecology’s social aspects, produced

589 Mann and Plummer, 187-188.
a new discipline, conservation biology. Conservation biology has been defined as a “crisis-driven, mission-oriented, problem-solving discipline” oriented toward the “description, explanation, appreciation, protection, and perpetuation of biological diversity.” Conservation biology focuses on ecosystem- and landscape-level issues as well as interactions among species. As conservation biology began to gain traction, ecologists increasingly questioned the single-species orientation of the ESA. The concept of ecosystem management also evolved from conservation biology. As scientists gained greater understanding of the interrelationships across an ecosystem, it was increasingly apparent that active management decisions would be needed to sustain ecosystem health. These insights were important in the development of the Comprehensive Everglades Restoration Plan (chapter 28).  

Everglades National Park was the site of an important early biodiversity experiment. In their 1967 book, *The Theory of Island Biogeography*, Robert H. MacArthur and Edward O. Wilson argued that the diversity of species on an island was directly related to the size of the island and its distance from other islands or the mainland. The book became a classic and led to a great deal of work on the role of habitat size and the degree of isolation on species diversity. To test his ideas on the achievement of species equilibrium on an island, Wilson in 1968 got permission from Everglades National Park to totally eliminate all arthropods on two small (11 to 18 meters in diameter) mangrove islets. Wilson and his graduate student, Daniel S. Simberloff, carefully tallied the number of arthropod species before extermination. Recolonization occurred within four to six months and validated Wilson’s predictive model concerning relative isolation. Wilson later described this as one of the first experiments on a complete natural ecosystem.

**Multi-Species Recovery Plans**

Through the mid-1990s, the majority of recovery plans under the ESA were single-species plans. Responding to the increased focus on biodiversity and pressured by lawsuits, the FWS from 1995 more often emphasized multi-species plans. In theory, multi-species plans had the potential to improve ecosystem health, thus benefitting numerous species, while also saving time and money. The great majority of multi-species plans approved in the 1980s and 1990s included fewer than ten species. South Florida,

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594 The first multi-species plan covered two plant species found in the sand dunes of Eureka Valley, California.
with its severely compromised ecosystems and large number of threatened and endangered species, appeared a prime candidate for the multi-species approach. The FWS assembled a large team to prepare the *South Florida Multi-Species Recovery Plan* (MSRP), released in 1999. The plan identified the recovery needs of 68 threatened and endangered species and 23 natural communities. The territorial range of the plan was the 19 southernmost Florida counties, embracing 26,000 square miles. The MSRP was “one of the first specifically designed to recover multiple species through the restoration of ecological communities over a large geographic area.” Tom Armentano, Oron L. Bass Jr., David Jones, and Skip Snow from the park were members of the team that developed the MSRP. In March 2007, the FWS gave formal notice of the availability of the final implementation schedule under the MSRP.595

More Resources to Study Species

The establishment of the South Florida Research Center in 1977 gave Everglades National Park resources to study rare and endangered species that had previously been lacking. The center produced a flurry of studies in late 1970s and 1980s on individual species and ecological topics. As the FWS became more active in implementing the ESA, its scientists often took the lead in studying imperiled species. The state of Florida also stepped up its research conservation efforts, and more and more academic scientists chose to conduct studies in South Florida.

The remainder of this chapter provides summaries of how major categories and individual species have been approached by park managers over the decades since 1947.

Wading Birds

Wading birds that have been known historically to nest in Everglades National Park include the roseate spoonbill (*Ajaja ajaja*), the great egret (*Egretta albus*), the wood stork (*Mycteria americana*), the white ibis (*Eudocimus albus*), the snowy egret (*Egretta thula*), the tricolor heron (*Egretta tricolor*), the little blue heron (*Egretta caerulea*), the great blue heron (*Ardea herodias*), and the black-crowned night heron (*Nycticorax nycticorax*). Of these, the wood stork, great egret, snowy egret, white ibis, and roseate spoonbill

currently nest in the park in verifiable numbers. Several other wading birds are casual park visitors (figure 12-2, Tricolor heron).

As the crowning glory of Everglades wildlife, wading birds were of paramount concern to Superintendent Beard and his small staff in the park’s early years. Park rangers acted to protect known rookeries and monitored yearly breeding success as best they could. At first the primary motivation was probably ensuring a good wildlife display, but it later became apparent that the status of wading birds was an excellent indicator of the general health of the ecosystem. As soon as they were in park ownership, rangers closed Cuthbert Lake Rookery, East River Rookery, and Rookery Branch in headwaters of Shark River Park during breeding season.

The completion of the WCAs under the Central and South Florida Project in the 1960s closed off sheet flow into the park and began to affect wading bird nesting. The formation and continuance of bird rookeries depend on the availability of prey – the small fish and invertebrates that collect in pools as the glades dry out in winter. The closing of the gates to WCA 3 in the 1960s coincided with drought, and the ridge and slough areas were frequently too dry. In later years, when water levels were too high farther north, large amounts of water were dumped into the park, interfering with the concentration of prey. From park

596 A comprehensive checklist of birds found in the park is available online at [http://www.nps.gov/ever/naturescience/birdspecieslist.htm](http://www.nps.gov/ever/naturescience/birdspecieslist.htm). The cattle egret (*Bubulcus ibis*), a species introduced to North America in the nineteenth century, is also found in the park.

establishment, rangers estimated bird populations in rookeries. In the 1980s, South Florida Research Center (SFRC) staff began flying regular surveys and estimating rookery populations from the air, a practice that has continued. Center scientists also did studies that, among other things, began to reveal differences in prey preference and feeding range for different species. By the late 1980s, park scientists were able to identify three major impacts from the C&SF project. First, birds were delaying nesting. Wood storks that previously nested in November/December were now forming colonies in February/March. The smaller herons, egrets, and ibis had shifted from February/March to March/April. Second, birds were changing their nesting locations. Species with more limited foraging ranges, like egrets, white ibis, and the smaller herons, were more often nesting to the north in WCA 3. Finally, nesting was becoming less successful. As one example, from 1953 through 1962, wood storks nested successfully within the park in seven of 10 years; from 1963 through 1988, in only seven of 25 years.598

The wood stork is the only wading bird nesting in the park that has ever been listed as endangered. The southeastern U.S. is the northern extent of the breeding range of this large (30- to 45-inch-tall) white bird with black accents. Wood storks typically nest in medium to tall trees occurring in stands located either in swamps or on islands surrounded by open water. Storks often nest in conjunction with great egrets, snowy egrets, white ibis, and other wading birds. Wood storks forage using tactolocation, or grope feeding. The birds put their open beaks in shallow water and snap them shut when fish of sufficient size are detected.599

The FWS listed the U.S. population of the wood stork as endangered on February 28, 1984. A recovery plan was signed on September 9, 1986, and a revised recovery plan released on January 27, 1997. The FWS has not designated critical habitat for the species. Wood stork populations hit a low point in the late 1970s, when it was estimated that there were 5,000 breeding pairs in the entire Southeast. Before the 1970s, 75 percent of wood storks nested south of Lake Okeechobee. As changes to the water regime in South Florida made that region less hospitable to the storks, their breeding range has expanded to the north. As of the mid 2000s, 70 per cent of wood storks were nesting north of Lake Okeechobee. Substantial numbers of breeding colonies are now located in North Florida, Georgia, and South Carolina. Overall, it appears that the number of breeding pairs per colony has declined. The greatest threat to the species remains the loss foraging wetlands. As wetlands are lost under approved habitat conservation permits, it is not certain that the wetlands provided as mitigation

599 Multi-Species Recovery Plan, 4-393-4-402.
will adequately meet wood stork foraging needs. The wood stork has been identified as a sentinel species to measure the success of the restoration of the Everglades ecosystem.  

In June 2014, Secretary of the Interior Sally Jewell announced that the FWS was beginning the process of moving the wood stork from endangered to threatened status. The step was taken because the bird had successfully established nesting colonies in Georgia and the Carolinas. The FWS gave an estimate of 9,000 breeding pairs in justifying the change in status. The National Audubon Society questioned whether there was an adequate scientific basis for making the change.

**Estimating Bird Populations**

Any discussion of Everglades wading birds must address a persistent myth. The confident statement that the wading bird population of the Everglades has declined 90 or even 95 percent can be found in dozens of books and articles. Although it is clear that wading bird populations are now less than they were in the past, it is impossible to accurately estimate populations prior to the 1970s. Simply put, there are no data to support assertions that South Florida had as many as 2.5 million wading birds in the 1870s before organized plume hunting began or had rebounded to a million or a million and one-half birds by 1935. In 1973, for example, Bill Robertson gave the following estimates for South Florida wading bird populations:

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1870</td>
<td>2,500,000</td>
</tr>
<tr>
<td>1910</td>
<td>500,000</td>
</tr>
<tr>
<td>1935</td>
<td>1,500,000</td>
</tr>
<tr>
<td>1960</td>
<td>300,000</td>
</tr>
<tr>
<td>1973</td>
<td>150,000</td>
</tr>
</tbody>
</table>

There were no qualified observers in the Everglades before 1901, so nineteenth century estimates are mere guesses. Following Guy Bradley’s 1905 death, Audubon wardens did not return to the area until 1931. In the mid-1930s, the NAS’s Robert Porter Allen established a field research station at Tavernier in the keys. Allen visited the huge colony at Rookery Branch on Shark River and reported that the number of birds was beyond counting. Over time, in various Audubon publications, the number rose to hundreds of thousands, then half a million, and finally a million—all based on Allen’s

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602 Dr. William B. Robertson Jr to Joel Kuperberg, Executive Dir., Trustees of the Internal Improvement Trust Fund, June 1, 1973, EVER-01385.
original observation that they were too many to count. In 1946, as FWS wardens were replacing Audubon wardens in the Everglades, Allen reviewed warden reports from 1901-1905 and 1931 on. His analysis cautioned that no great reliance should be placed on warden bird counts because wardens were few, each warden used his own methods to arrive at population estimates, and there were wide, unexplained fluctuations from year to year. Once the million plus bird estimate and 90 percent decline claim got into print, they kept being repeated. Their popularity stems in part from their usefulness in getting the public’s attention and promoting conservation measures.603

Cape Sable Seaside Sparrow

The Cape Sable seaside sparrow (*Ammodramus maritime mirabilis*) is a medium-sized, nonmigratory sparrow found only in Monroe and Miami-Dade Counties (figure 12-3, Cape Sable seaside sparrow). It is one of eight extant subspecies of seaside sparrow found in the U.S. The Cape Sable seaside sparrow was first reported and described in 1918 when a population was nesting in and around Cape Sable. The 1935 hurricane changed the Cape Sable vegetation and water salinities, and the sparrow was later found nesting in locations farther inland. By the 1990s, six subpopulations had been identified, all in or directly adjacent to Everglades National Park. The sparrow is quite particular about where it nests, seeking short-hydroperiod marl prairies and avoiding sites with permanent water cover. Sparrow nests occur in vegetation within six or seven inches of the ground, making them highly vulnerable to rises in water level. The sparrow typically does not nest on burned-over prairie until two to four years after a fire and frequently walks along the ground to forage. Since the bird has a lifespan of just two

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to four years, even short-term disruption of its nesting and foraging habitat can have dire consequences for the subspecies’s survival.604

The FWS listed the sparrow as endangered March 11, 1967, and designated critical habitat on September 22, 1977, at a time when the full distribution of sparrow subpopulations was not understood. A recovery plan was prepared in April 1983, with SFRC scientist James Kushlan as chair; the plan was then updated in May 1999 as part of the MSRP. In August 1999, the Biodiversity Legal Foundation and others petitioned the FWS to revise the designated critical habitat. The FWS determined that new information obtained since 1977 likely warranted a revision. Believing that FWS was not responding within the required time periods, the Biodiversity Legal Foundation in December 2000 brought suit in U.S. District Court. The court ordered the Service to commit to a timetable for preparing a revised critical habitat. In response, FWS published a proposed rule in October 2006 and a final rule on critical habitat in November 2007. The final rule designated 84,865 acres of critical habitat in five discontiguous units. Four of the units are entirely within Everglades National Park. Unit 3 straddles the eastern park border and includes 9,867 acres of state-managed land (figure 12-4, Cape Sable seaside sparrow subpopulations).605

Starting in 1978, NPS scientists began studying the sparrow’s distribution and abundance, conducting a systematic survey in 1981. This resulted in several publications and a 1982 sparrow management plan. At that time, sparrows were nesting on the northwestern edge of the park, in the East Everglades, south of the main park road, and just to the east of the park boundary. Between 1993 and 1995, the abundance of the sparrow declined by more than 50 percent. A major reason was that water released by the SFWMD was flooding sparrow nesting areas on the western side of the park. At the same time, nesting areas on the eastern side of the park were being adversely affected by fire. In February 1999, the FWS issued a biological opinion concluding that tests one through seven of the modified water deliveries program (see chapter 28) were “the primary cause of declines in sparrow populations since 1992 and have jeopardized, and will continue to jeopardize the continued existence” of the subspecies. In October 1999, the Natural Resources Defense Fund and others brought suit against the Corps and the water management district asking the U.S. district court to order the defendants to take steps to protect the sparrow. In 2001, the court denied the plaintiffs’ motion for injunctive relief. In the meantime, in January 2000, the Miccosukee Tribe had filed its own lawsuit claiming that actions by the Corps and the

605 32 Fed. Reg. 4001 (original designation); the final rule on revised critical habitat and citations to other rules is found in 73 Fed. Reg. 62736-62766 (Nov. 6, 2007).
Figure 12-4 Designated Critical Habitat Units for the Cape Sable Seaside Sparrow
district aimed at aiding the sparrow had harmed the tribe by elevating water levels in WCA 3. \footnote{606 73 Fed. Reg. 62736-62766 (Nov. 6, 2007); “Glades Flooding Killed Hundreds of Sparrows,” Miami Herald, Nov. 28, 1998; quotation in Multi-Species Recovery Plan, 4-357; Case No. 99-2899-CIV-Moore/O’Sullivan, U.S. District Court, Southern District of Florida.}

Of the six identified sparrow subpopulations, three – subpopulations A, B, and E -- are core populations, i.e., they are believed to be capable of maintaining large enough numbers to be self-sustaining. As of 2010, the FWS considered only subpopulation B (located south of the main park road) self-sustaining. Subpopulation A on the western edges of Shark Slough was the hardest hit by the 1990s flooding. FWS places a high priority on restoring an appropriate water regime for subpopulation A. Subpopulation C is in the headwaters of Taylor Slough, which has experienced significant fluctuations in water level from year to year. The census of subpopulation C fluctuated between 48 and 160 individuals for most of the 1990s and 2000s. Subpopulations D and F have been consistently small, with generally fewer than 50 individuals. \footnote{607 FWS, Cape Sable Seaside Sparrow (Ammodramus maritimus mirabilis) 5-Year Review: Summary and Evaluation (Vero Beach, Fla.: FWS, 2010).}

**Everglades Snail Kite**

The bird is now officially known simply as the snail kite, but the older name of Everglades snail kite is commonly used. This kite (\textit{Rostrhamus socialibilis plumbeous}) is a medium-sized hawk with a wingspan of about 45 inches. Mature males are slate gray with a red beak and black and white tail; adult females are mottled brown and white. The Everglades kite is believed to be one of three subspecies of a kite that is also found in Cuba and Central and South America. The subspecies \textit{Rostrhamus socialibilis plumbeous} is found in Cuba, Northwest Honduras and Central and South Florida. The Florida population of the kite feeds almost entirely on the freshwater apple snail (\textit{Pomacea paludosa}). The bird’s slender curved beak is specially adapted for removing a snail from its shell. Kite habitat consists of freshwater marshes and the edges of lakes where apple snails are found. Observations in the 1960s indicated that the total kite population had fallen to dangerously low levels, perhaps fewer than 100 individuals, although the limitations of the survey methodology employed at that time make firm conclusions impossible. Beginning in the early 1990s, some birds have been radio-tracked, and recent population estimates carry more reliability. Kite populations were on the increase through the 1990s, but then declined in the 2000s, probably as
a result of a number of years of low water, which reduced the supply of apple snails available to kites.\textsuperscript{608}

The Everglades snail kite was listed as endangered on March 11, 1967. Critical habitat for the subspecies was designated on August 11, 1977. A recovery plan was produced on March 11, 1983, and revised September 9, 1986. A substantially revised recovery plan was prepared as part of the MSRP of May 18, 1999. As the Central and South Florida Project changed water levels in marshes, lakes, and streams, kite populations have relocated within the state. Major nesting grounds for the kite in recent decades have been Lake Tohopekaliga and WCA 3. Few if any kites have been nesting within Everglades National Park. In recent years, an exotic species from South America, the island apple snail (\textit{Pomacea insularum}) has been found in greater numbers in South Florida. The island apple snail is considerably larger than the native apple snail, the kite’s traditional prey, but is less affected by changes in water levels. As yet, it is unclear whether the intruder is replacing the native snail or how suitable a food source the introduced species will be for the kite.\textsuperscript{609}

Bald Eagle

The bald eagle (\textit{Haliaeetus leucocephalus}) is America’s national bird, having been chosen in 1782 to appear on the great seal of the United States. It is the only species of sea eagle in the U.S. and makes its home near a variety of bodies of water—oceans, bays, rivers, large lakes, and reservoirs—across the country (figure 12-5, bald eagle in flight). Adults have white heads and tails contrasting with a chocolate brown body. The bird’s Latin name translates as sea (salt) eagle with a white head. Females weigh from 10 to 14 pounds; males are smaller at 8-10 pounds. The bird’s wingspan can exceed 7 feet. The eagle’s primary prey is fish, but it also feeds on small reptiles, birds, mammals, and carrion. Eagles return to the same area and often the same nest, year after year. In 1962’s \textit{Silent Spring}, Rachel Carson used the bald eagle to drive home her warnings about the dire effects of organochlorine pesticides, notably DDT, on bird populations. Largely because of uncontrolled pesticide use, the bird went into a severe decline after World War II, with fewer than 500 breeding pairs remaining in the lower 48 states in


1963. The pesticides had similar effects on osprey, pelicans, and other top-tier predator birds.

Because of the eagle’s uncertain future, high public profile, and protected status within Everglades National Park, Dr. Bill Robertson made the species a focus of early censuses and research. In winter 1958/1959, Robertson and other park staff began flying over the park and adjacent areas in fixed wing aircraft, counting eagle nests and monitoring fledglings. Eagle nests are large, weighing up to 1,000 pounds, and often fairly easy to spot from the air. Observers also were able to spot adult eagles in flight and follow them to their nests. In addition to counting individuals, the researchers removed a few eggs and had them tested for organochlorines. Robertson reported in 1969 that eagles in the park “appear to be reproducing at a rate entirely adequate to maintain the local population, in spite of surprisingly high DDE [dichlorodiphenyldichloroethylene\(^{610}\)] residues detected in eggs.” The U.S. banned DDT in 1972, and bald

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\[^{610}\] DDE is one of the more common byproducts when the pesticide DDT [dichlorodiphenyltrichloroethane] breaks down in the environment.
Eagles began a slow recovery in many areas of the U.S. Robertson was a member of the team that produced a recovery plan for the southeastern population of bald eagles in 1984.\footnote{William B. Robertson and John C. Ogden, Population Dynamics of Bald Eagles in Everglades National Park, n.d. [1969], EVER 42242, ser. IV; “'Glades May Save Eagles,” Miami Herald, July 24, 1963; FWS, Southeastern States Bald Eagle Recovery Plan (Atlanta: FWS, August 1984).}

Even before the U.S. enacted broad legislation to protect endangered species, Congress in 1940 passed the Bald Eagle Protection Act. This law made it a federal crime to take bald eagles anywhere.\footnote{In federal law, the term “take” is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Endangered Species Act, section 3(18).} On March 11, 1967, the eagle was placed on the endangered species list south of latitude 40 north (roughly, a line from northern California to Philadelphia). On February 14, 1978, it was listed as endangered in 43 states (including Florida) and threatened in five midwestern and western states. As eagle population continued to increase, the FWS on July 12, 1995, reclassified the species as threatened in those 43 states. Finally, after a prolonged period of analysis and public comment, the FWS declared the bald eagle recovered and delisted it, effective August 8, 2007. By that point almost 10,000 nesting pairs were present in the lower 48 states.\footnote{32 Fed. Reg. 4001; “Removing the Bald Eagle in the Lower 48 States from the List of Endangered and Threatened Wildlife,” 72 Fed. Reg. 37346-37372; Institute of Wildlife Sciences, Inc., http://www.instwildlifesciences.org/eagle2.html.}

The bald eagle monitoring at Everglades represents one of the longest continuous monitoring efforts on a single species anywhere in the U.S. The annual eagle monitoring from aircraft was carried out by Everglades park staff from 1958/1959 through 2013/2014, using the same basic protocol of observing individuals and nests. Each nesting area was surveyed monthly over the five-to-seven-month nesting season. Monitoring was less frequent in just four years (1980, 1981, 1984, and 1985) because of vacant positions among the park’s biology staff. Recent park eagle research has included studying blood chemistry and tracking eagle movements by satellite.\footnote{Lori Oberhofer, personal communications, Oct. 30, 2013, and July 3, 2014; John D. Balkwin, Jason W. Bosley, Lori Oberhofer, Oron L. Bass, and Brian K. Mealey, “Long-Term Changes, 1958-2010, in the Reproduction of Bald Eagles of Florida Bay, Southern Coastal Everglades,” Journal of Raptor Research 46/4 (2012):338-339. Funding shortfalls limited the aerial surveys in 2013/2014 to runs over Florida Bay.}

**Brown Pelican**

The eastern brown pelican (\textit{Pelecanus occidentalis occidentalis}) is a large grey-brown water bird with white head and neck feathers that can reach a weight of up to eight pounds and a wingspan up to seven feet (figure 12-6, brown pelican). The bird feeds by plunge diving for fish in ocean waters, rarely venturing more than 20 miles from
shore. In Florida, brown pelicans nest in trees or on the ground, mostly on mangrove islands and other small islands. Nesting sites are scattered widely throughout the state; in 1983, FWS estimated that 5 percent of Florida nesting sites were within Everglades National Park. In the late 1950s, brown pelican populations in Texas and Louisiana declined dramatically because of the effects of the use of organochlorine pesticides. The pesticides killed birds directly and also reduced reproductive success by thinning the thickness of eggshells. Populations in South Florida seem not to have suffered as much as those farther west.615

The FWS placed the brown pelican throughout its U.S. range on the list of endangered species on October 13, 1970. A recovery plan for the eastern brown pelican was published on August 1, 1980. The pesticide DDT was banned in the U.S. in 1972 and the use of other pesticides sharply curtailed. As a result, the shell thickness of

pelican eggs (as well as osprey and bald eagle eggs) increased. Brown pelican populations stabilized or rebounded in many areas. As of February 4, 1985, the FWS removed the pelican on the Atlantic and Gulf Coasts from endangered status, with the exception of Texas, Louisiana, and Mississippi. In the southeastern states, including all of Florida, the bird was “at or above historical breeding levels and has stable population numbers and productivity.” The greatest remaining threat to the pelican is loss of suitable breeding ground.

Reintroduced Birds

Before the park's establishment, wild turkeys and a number of other bird species were resident in pine uplands in South Florida. Traditionally, turkeys were an important source of food for Everglades residents. As early as 1911, Seminole Billy Bowlegs lamented that turkeys were getting harder to find (figure 12-7, wild turkey). More and more pineland was lost to development after World War II. Between park establishment

Figure 12-7. Wild turkey

and the 1970s, turkeys and six other birds (eastern bluebirds, brown-headed nuthatches, southeastern American kestrels, red-cockaded woodpecker, hairy woodpecker, and summer tanager) disappeared from upland areas of the park. The park began to look toward reintroducing species. A 1971 attempt to reintroduce turkeys to Long Pine Key was unsuccessful, probably because hunting was still taking place on the private property in the Hole-in-the-Donut. Any turkeys that wandered into the fields on private land likely were shot.\footnote{617}

In the 2000s, the park renewed its efforts to reintroduce wild turkeys \textit{(Melagris gallopavo osceola)}, eastern bluebirds \textit{(Sialia sialia)}, and brown-headed nuthatches \textit{(Sitta pusilla)}. In January 2000, 22 female and seven male turkeys were released on Long Pine Key. Most died quickly, but six years later, one of the original males and five to six from subsequent generations were known to be present. By the 2000s, prescribed burns in the pinelands were likely more successful than previously in maintaining turkey habitat. In January 2006, another 25 birds were released on Long Pine Key.\footnote{618}

Following Hurricane Andrew in 1992, park scientists noted that downing of trees caused by the storm might be a boon to cavity-nesting birds like bluebirds and nuthatches. In May 1997, a bird watcher observed two bluebirds, the first park sighting in more than three decades. The park then decided to transplant bluebirds and nuthatches from Big Cypress to Long Pine Key in hopes of establishing breeding populations. All translocated birds were tagged. By 2001, breeding populations of about 25 individuals of each species were present on Long Pine Key.\footnote{619}

### Freshwater Fishes

The freshwater marshes, alligator holes, solution holes, creeks, and rivers of the Everglades are home to about 30 species of native freshwater fishes. The smaller marsh fishes are predominantly killifishes (Cyprinodontidae), livebearers (Poeciliidae), and juvenile sunfishes (Centrarchidae). Among the most abundant are the bluefin killifish \textit{(Lucania goodei)}, the least killifish \textit{(Heterandria formosa)}, the eastern mosquitofish \textit{(Gambusia holbrooki)}, and the flagfish \textit{(Jordanella floridae)}. Deeper waters, notably alligator holes, support larger species: the Florida gar \textit{(Lepisosteus platyrhincus)}, the yellow bullhead \textit{(Ameiurus natalis)}, adult sunfishes, and the occasional largemouth bass \textit{(Micropterus salmoides)}. Before drainage the annual winter drydown of the Everglades
acted to concentrate fishes in solution holes, alligator holes, and the headwaters of rivers. When the wet season came, the surviving fish would then spread out again as the marshes flooded. A succession of unusually dry years might dramatically reduce fish populations, but they usually would recover after several years of more normal rainfall. With the implementation of the Central and Southern Florida Flood Control Project, hydroperiods generally became shorter, with their duration largely determined by water management decisions. Small freshwater fishes are an important prey source for most Everglades wading birds, alligators, and some mammals like raccoons. The artificial drainage system not only changed the hydroperiods in the Everglades but also created canals, areas of deeper water that never dried up. These became places where small fishes could seek refuge in the dry season, but they also were tailor-made conduits for the introduction of nonnative fish species into the Everglades (see chapter 14).620

Before the 1950s, no attempts were made to study the numbers and species of Everglades freshwater fishes. As part of the park’s arrangement with the University of Miami, J. B. Reark studied fish density and biomass in the Shark River Slough, producing reports in 1961 and 1962. These were the only quantitative studies of marsh fishes prior to the closing of the gates of Water Conservation Area 3. All subsequent studies of Everglades freshwater fishes took place in an environment of managed water deliveries. From 1965 to 1972, the NPS had a contract with the USGS to conduct sampling in the Shark River Slough. This work was designed to relate the composition and populations of aquatic animal communities (fishes, crayfish, apple snails, and shrimp) to hydrological changes. With the establishment of the South Florida Research Center in 1976, the park began a long-term program to study the aquatic ecosystem, including freshwater fishes.621

When James Kushlan was hired at the South Florida Research Center, he developed a throw trap that was a significant improvement over the fixed traps used previously. This one-meter-square trap is portable and is thrown into the water, quickly confining the fish assemblage. Once the trap is closed, technicians remove the trapped fish and macro-invertebrates with dip nets. Kushlan also developed a conversion factor to correct for the biases of the fixed nets, so that data from the USGS monitoring could be compared with data obtained with the throw trap. Monitoring of marsh fishes with the throw trap has been carried on continuously in the park since the 1970s.

Kushlan’s trap has also been adopted all over the world. The throw trap does not allow for accurate sampling of larger fishes, which are more widely disbursed. Since 1997, the park has supplemented throw-trap monitoring with electrofishing. Electrofishing involves temporarily stunning fish with electric current so that counts of larger fish can be made. Almost all of the stunned fish recover unharmed within a minute or two.\(^{622}\)

The consistent monitoring of marsh fishes over close to 40 years has provided valuable data to evaluate the effects of changes in water management regimes. This kind of data has been and will continue to be used in computer modeling and the development of performance measures to assess the effectiveness of components of the Comprehensive Everglades Restoration Plan (see chapter 28).\(^{623}\)

**Alligators**

The alligator (*Alligator mississippiensis*) historically was present in large numbers in Florida. In the 1760s, naturalist William Bartram saw them so thick in the St. Johns River that he claimed one could walk across the stream on their backs. By the late 1940s, alligators were reduced in number across much of their range in the southern U.S., largely because they were intensively hunted for their hides. By contrast, they seem still to have been present in reasonably large numbers in Everglades National Park. Biologist Frank C. Craighead wrote that in the mid-1950s it was not uncommon to see 50 to 100 gators during the course of a five- or six-hour boat excursion on the tributaries of the Shark, Northeast, and Rogers Rivers.\(^{624}\)

A number of factors in the 1960s, notably the closing of the gates for WCA 3, stressed alligator populations in the park. The interruption of the previous water regime disrupted the alligator life cycle. Too little water dried up the landscape and deprived gators of food sources. After female alligators had laid their eggs, too much or too little water could flood or desiccate nests. The severe drought of the first half of the 1960s wreaked havoc on gators in the park, prompting managers to take some drastic measures. As the Everglades gradually dry out in the winter months, fish, crustaceans, and other small animals become concentrated in deeper pools. Some of these pools, known as alligator holes, are created by alligators themselves. In winter

\(^{622}\) Trexler, Loftus, and Chick, 357; Loftus and Eklund, 464; Kushlan interview. James Kushlan has described his trap as “a horrible device to use. You have to stand out in the swamp all day throwing the trap 10 to 15 times and then digging all the fish out with 30 or so dip net sweeps, all for a sample. Generations of technicians around the world have hated that trap, but it’s very useful, very effective.”

\(^{623}\) Jeff Kline, personal communication, June 28, 2013.

Figure 12-8. Relocating an Alligator, 1960s, C. A. Mitchell photo
1964/1965, all but the deepest pools dried up. To compensate, the park created artificial pools by blasting holes six to seven feet deep into the limestone underlying the Shark Slough. Demolition experts from Homestead Air Force Base assisted in this project. The project had some success; managers supplemented it by moving 83 gators from dry to wet areas and bringing in fish to feed them (figure 12-8, Relocating an alligator). The blasting of artificial gator holes was repeated in March 1969, but did not continue beyond that date. The record is silent on why the blasting stopped. It can be surmised that managers realized that only a few alligators could be protected. In addition, the NPS in 1974 proposed that most of the park be designated as wilderness, and blasting was clearly an inappropriate wilderness activity.  

The Florida alligator population overall rebounded quickly after the 1969 amendments to the Lacey Act largely put an end to the hide trade. As expanding gator numbers increasingly interacted with expanding human populations, the state of Florida began a nuisance alligator program in 1978 and opened a limited hunting season in 1981. Everglades National Park in 1979 instituted a program for managing “problem alligators.” When the program was reviewed a few years later, it was noted that from 1972 through 1982, only 27 instances of aggressive alligator behavior had been reported. The report recommended continuing to educate visitors about alligators, enforcing prohibitions on feeding the gators, and as a last resort, relocating troublesome alligators to other park areas. The recovery of the alligator throughout Florida is a major success story for a previously stressed species. Alligators in South Florida, including those in Everglades National Park, tend to have lower growth rates, delayed sexual maturity, and smaller clutch sizes than alligators farther north. The primary reason is that the nutrient-poor environment of the Everglades region provides alligators with a diminished food supply compared to regions to the north.  

The FWS listed the alligator as endangered throughout its range in 1967, largely because it was still being harvested in considerable numbers. The species had recovered sufficiently by January 1977 for the Service to reclassify it as threatened in Florida and other states. In June 1985, the Service changed the status to “threatened by similarity in appearance.” The hides of alligators resemble those of other crocodilians, some of which are endangered. This similarity makes identification of particular specimens in the hide trade difficult. The threatened-by-similarity classification

allowed the Service to continue to issue regulations pertaining to alligator hides under the ESA, even though it no longer considered the alligator to be at risk of becoming endangered.627

Crocodiles

The American crocodile (*Crocodylus acutus*) is a large reptile, grayish brown and mottled with black, that reaches lengths of 7 to 12 feet (figure 12-9, American crocodile). South Florida is at the extreme northern end of the range of the species, which is found in greater numbers in the waters of Cuba, Jamaica, Hispaniola, and the Caribbean coast from Venezuela to the Yucatan. Historically, crocodiles occurred in Florida as far north as Lake Worth in Palm Beach County, while their main nesting grounds were the shores of Biscayne and Florida Bay and the upper Florida keys.628

In 1938, Dan Beard feared that as few as 50 to 75 crocodiles were present in Florida waters. In the early 1970s, the species appeared to be nesting only in a small area of northeastern Florida Bay and northern Key Largo. The estimated population was

![Figure 12-9. American crocodile](image)

between 100 and 400 individuals. Concerned about poor nesting success, the park experimented with incubating and hatching crocodile eggs. Managers were encouraged when they successfully hatched about 10 baby crocodiles in a nesting box in 1969. In 1975, the park began planning an expanded artificial nesting program. Assistant Chief Ranger James Olson visited the Everglades Wonder Gardens in Bonita Springs to see whether a breeding program using the gardens’ existing adult crocodiles could supply juveniles to the park. Garden owners Les and Bill Piper showed some interest, but the park opted to do its own breeding program. Rangers removed eggs from crocodile nests that seemed to have poor prospects for producing hatchlings and placed them in an incubator at the park. The experiment was not a success. A 1978 report by John L. Behler of the New York Zoological Society concluded that a captive breeding program was feasible, but the park did not try again.

After the failure of the artificial nesting program, the park in 1980 established a crocodile sanctuary (special protection zone) that embraced Little Madeira Bay, Joe Bay, Taylor River, East Creek, Mud Creek, and Davis Creek. Females were known to construct earthen nests on the shores of these waters, and the areas were closed to public entry. The sanctuary was unpopular with some fishermen, and the park revisited the status of the sanctuary in 1990. There was some evidence that crocodiles had extended their nesting grounds, but the park concluded that it would not be prudent to make any changes to the existing sanctuary. Over time, the park has increasingly justified the special protection zone as an area where scientists can study natural processes unaffected by human intrusion. The protected area serves as a baseline against which changes in unprotected areas can be measured. In public discussions that were part of developing the park’s draft general management plan (GMP), some community members called for reopening portions of the sanctuary, particularly Joe Bay. There was little or no sentiment for expanding the special protection zone, and the preferred alternative in the GMP calls for maintaining it as is. See chapter 26 for the evolution of the park’s GMP.

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629 The Everglades Wonder Gardens, opened in the late 1930s, was one of the earliest tourist-oriented nature attractions in South Florida. Its history is recounted in Charles LeBuff, *Everglades Wildlife Barons: The Legendary Piper Brothers and Their Wonder Gardens* (Sanibel, Fla.: Ralph Curtis Publishing, 2010).


Believing that only 10 to 20 breeding females existed in Florida, the FWS listed the crocodile as endangered throughout its Florida range on September 25, 1975. It then established critical habitat for the species as of September 24, 1976. The habitat embraced the very southern end of Biscayne Bay, most of Florida Bay, and all of the Florida keys from Old Rhodes Key to Long Key. In early 1979, the Fish & Wildlife Service published an *American Crocodile Recovery Plan* The recovery team included three Everglades National Park members: Richard Klukas, Dr. William B. Robertson, and Dr. James A. Kushlan. The major goal of the plan was to “establish self-sustaining populations at natural carrying capacity in appropriate habitats” through research, captive breeding, habitat protection, and public education. The recovery plan was updated as part of the MSRP of May 18, 1999. By 2005, the crocodile had expanded its breeding range, with nesting at the Turkey Point Nuclear Plant complex on Biscayne Bay and farther west along Florida Bay. The FWS changed the status of the species to threatened, effective April 19, 2007. Individuals have been spotted as far north as Tampa Bay, and the total population may have reached 2,000 before a cold snap in early 2010 killed at least 150 crocodiles. The current population estimate is about 1,500.632

**Eastern Indigo Snake**

The eastern indigo snake (*Drymarchon couperi*) is a long, thick-bodied snake, reaching lengths of five to six feet in adults (Figure 12-10, Park aide with an indigo snake). Adults are iridescent black and have throat markings of red, coral, or white that may extend onto the belly. Historically the snake was found throughout Florida and the coastal plain of Georgia, Alabama, and Mississippi. Today, the species is largely confined to peninsular Florida and 40 counties in Georgia. The snake makes use of a wide range of habitats, including pine uplands and flatwoods, dry prairie, hardwood hammocks, the edges of freshwater marshes, agricultural lands, and the banks of canals. Within Everglades National Park, it has most often been reported in and near Long Pine Key, on former agricultural lands in the Hole-in-the-Donut, and on keys in Florida Bay. Within the park, the snake’s prey includes cotton rats, toads, turtle eggs, and several snake species. The indigo snake needs subsurface refuges and often makes use of gopher tortoise burrows. Indigo snakes have large activity ranges (up to 3,000 acres) and

are elusive, making it impossible to arrive at reliable population censuses and trends.633

The FWS listed the eastern indigo snake as threatened throughout its range on January 31, 1978.634 A decline in population had been noted, attributable to habitat loss, overzealous pet collecting, and the gassing of gopher tortoise burrows to kill rattlesnakes. An eastern indigo snake recovery plan was issued April 22, 1982. No critical habitat has been established. Because development continues to fragment snake habitat, the FWS has maintained the threatened status. Given the need of the species for large home ranges, the unbroken expanse of Everglades National Park and other state and federal preserves may represent the best chance for the survival of the species. Within the park, the major threat to the snake is being run over by motor vehicles.635

634 At first listing, the snake was considered a subspecies, *Dyrmarchon corais couperi*, but is now considered a separate species
635 FWS, *Eastern Indigo Snake 5-Year Recovery Plan*, Steiner et al.
Sea Turtles

Among the most majestic of ocean dwellers are the seven existing species of sea turtle. Of these, only the loggerhead (*Caretta caretta*) is known to nest consistently in Everglades National Park. The green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), Atlantic Ridley turtle (*Lepidochelys kempi*), and leatherback turtle (*Dermochelys coriacea*) are occasional visitors in park waters (figure 12-11, green sea turtle). Loggerheads are found in a number of places around the world, but the population in each ocean basin is genetically distinctive. The population that nests from Virginia to the Yucatan Peninsula has been designated the Northwest Atlantic distinct population segment (DPS). Within this DPS, more turtles nest on Florida beaches than anywhere. The broad Cape Sable beaches within the park are prime loggerhead nesting territory. As beachfront development farther north along the Gulf Coast destroyed habitat,
more females seem to have begun nesting within the park. Mature loggerheads range up to four feet in shell length and 440 pounds; they have powerful jaws and feed mostly on mollusks and crustaceans.636

The loggerhead turtle was listed as threatened throughout its range under the ESA on July 28, 1978. The National Marine Fisheries Service and FWS published a recovery plan for the Northwest Atlantic population in 1984; the plan was revised in 1991 and 2008. As of this writing, critical habitat has not been designated. A status review for the species was undertaken in 2009, which concluded that the Northwest Atlantic population is “likely to decline in the foreseeable future,” largely because of accidental turtle mortality associated with the active commercial fishery operations in the Atlantic and Gulf of Mexico. The review found a continued risk of extinction and recommended no change in the endangered status.637

Depredation of loggerhead turtle nests by raccoons has been a consistent cause of concern for park managers. In 1964, rangers noted that about 70 percent of turtle nests at Cape Sable had been destroyed by raccoons. It is possible that raccoon populations had increased after the park was established because hunting was banned. The park began a live trapping program in 1966, removing and relocating 113 raccoons. The park continued the trapping for a few years, but never brought the destruction rate below 50 percent. By 1974, managers noted that the nesting activity had noticeably increased, and raccoon relocation stopped. In an effort to better understand turtle behavior, park personnel began tagging loggerhead turtles in 1973.638

In the 1960s, the park attempted to encourage nesting of the green turtle within the park. Historically green turtles have nested primarily on Florida's Atlantic Coast. From 1963 through 1966, under the direction of sea turtle expert Dr. Archie Carr, several thousand hatchlings were brought from the Caribbean Conservation Corporation's hatchery in Costa Rica and released in shallow waters in the park (figure 12-12, green turtle hatchlings). The hope was that the mature females would return to beaches in the park to nest, but it appears that none did.639

Florida Tree Snail

The Florida tree snail (*Liguus fasciatus*) is a large (2- to 3-inch) snail with a conical shell (figure 12-13, *Liguus* tree snail). It can be all white or cream in color, but more often has brightly colored bands of yellow, brown, pink, blue, or green. In the past, some researchers identified snail subspecies based on color forms and shell shapes. Recent genetic sampling has led scientists to consider all color forms as belonging to a single species. More than 50 different color variants have been identified, some of which are now extinct. The snail lives mostly on smooth-barked trees on hardwood hammocks on the mainland and keys in the four southernmost counties of Florida. The Florida snail is a subspecies of a tree snail (*Liguus fasciatus fasciatus*), which is native to Cuba. The animal is dormant in the dry season from December to April or May. The state of Florida has designated the tree snail a species of special concern; it has no federal protection. The main threat to the Florida tree snail is habitat loss as South Florida has become increasingly urbanized. Another danger comes from the red imported fire
ant (*Solenopsis invicta*), an aggressive insect that has been observed killing tree snails (see chapter 14 for more on fire ants).  

When Dan Beard prepared his 1938 *Wildlife Reconnaissance*, South Florida had developed a small coterie of tree snail collectors or “lig hunters.” One collector, Archie Jones, recalled that he began collecting in about 1934. Beard noted that the collectors “vie with each other for the rarest and most beautiful species [i.e., color variants] just like stamp collectors.” Jones recalled that at the height of the collecting trend, there were perhaps 20 to 25 serious collectors, one of whom had as many as 100,000 shells in his collection. Beard felt that the serious and responsible collectors performed a service by identifying and preserving color variants.

Shortly after the park’s establishment collectors Archie Jones, Ralph Humes, and C. C. Von Paulsen visited Superintendent Beard and voiced their concerns over the risk of elimination of many color forms. They were particularly worried about snails in the keys, where U.S. 1 gave collectors easy access to the hammocks that were home to the snails. Humes proposed that they transplant threatened color variants to hammocks in the park that had no resident snails. Beard liked the idea and assigned Ranger Erwin Winte to work with the group. The four men spent thousands of hours searching for rare color forms and for suitable hammocks in the park where they could be introduced. Because of the long distances involved, the collectors temporarily kept snails on a hammock near the park’s main entrance for later pick-up and delivery to a new home. Late in his life, Jones recalled that they were sensitive to the risk of accidentally producing new hybrid color forms. When they detected such a hybrid, they attempted to kill all individuals. Inevitably, some hybrid forms survived and became established. From the early 1950s through the mid-1960s, Jones recalls transplanting some 52 color

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641 Beard, *Wildlife Reconnaissance*, 61; Archie L. Jones, interview with Nancy Russell and Oron Bass, Sep. 20, 2006. In his interview, Jones described how he conducted his collecting trips. He traveled light, with a sandwich and as much water as he could carry, a telescoping bamboo pole for reaching specimens high in trees, and a cloth collecting bag fashioned by his wife.
variants to 224 hammocks within the park. The group also apparently raised snails in colonies and referred to a “Cuban-type hybrid,” suggesting that they may have cross-bred Cuban and Florida individuals. Participants in the introduction effort have color variants named for them; *archiejonesi*, *beardi*, *humesi*, *vonpaulseni*, and *wintei*. A number of *Liguus* collectors eventually donated specimens from their collections to the park.642

**Butterflies**

Butterflies have long attracted the attention of naturalists and collectors and are now known to be important indicators of ecological conditions. They typically respond to environmental changes more rapidly than larger animals. Many butterfly species rely on a single plant as a larval host and a different single plant as a source of nectar as an adult. Changes in the numbers of host and nectar plants obviously affect butterfly populations. Butterfly populations also are highly sensitive to weather events (notably, in South Florida, hurricanes), pesticides, and the effects of fire on their habitat. Butterfly conservation is a relatively new concept, and park staff gave little attention to butterflies until the late 1970s. It is likely that in early years, ignorance of butterfly life cycles resulted in park mowing and brush-clearing practices detrimental to butterflies and their host and food plants. In addition, for many years, prescribed burns in the park’s pinelands were conducted without considering the effects on butterflies.643

In June 1980, Barbara Lenczewski, a biologist working in the SFNRC, produced the first checklist of butterflies for Everglades National Park. Her report was based on two years of field collecting and extensive research in scientific literature and among butterfly collections in Florida. For each of 99 species, Lenczewski noted the date first reported in the park, habitat, food plants, and distribution. In 1998-1999, SFNRC Ecologist Sue Perry and her son Michael Perry did butterfly counts in the park. In addition, from 1998 through 2008, Sue Perry and FWS Lepidopterist Mark Salvato recorded butterfly observations in the park (figure 12-14, Bartram’s hairstreak butterfly). Perry’s goals were to determine the status and locations of imperiled butterfly species within the park so that this information could be considered in resource management decisions. Perry’s work culminated in her May 2009 “Report: Status of Butterflies in Everglades National Park.”644

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644 Barbara Lenczewski, *Butterflies of Everglades National Park* (Homestead, Fla.: SFRC, June 1980), 1-2; Perry, 11-15
The major threats to most butterfly species in South Florida are habitat destruction and mortality incidental to pesticide spraying for mosquitoes and other pests. Populations of a number of South Florida butterfly species have dropped sharply in recent decades. Some 28 species that Lenczewski recorded as having been observed historically were not observed by Perry and Salvato in the park from 1998 through 2008. They did observe five new species, including two that were new arrivals to South Florida from Caribbean islands. The imperiled butterfly species listed by Perry as occurring in the park are listed below. Most were observed primarily in the pinelands of Long Pine Key.

- Florida white (*Appias drusilla neumoegennii*)
- Bartram’s scrub-hairstreak (*Strymon acis bartrami*)
- Silver-banded hairstreak (*Chlorostrymon simaethis*)
- Florida leafwing (*Anaea troglodyta floridalis*)
- Florida duskywing (*Ephyriades brunnea floridensis*)
- Cuban crescent (*Anthanassa frisia*) – apparently a stray at Flamingo
- Tropical buckeye (*Junonia genoveva*)
Berry’s skipper (*Euphyes berryi*),
Palmetto skipper (*Euphyes arpa*).\(^{645}\)

Additionally, three imperiled species that had been observed historically appeared by 2008 to have been extirpated within the park, although they were known to be present elsewhere in South Florida. These were the Schaus swallowtail (*Heraclides aristodemus paneanus*), the Miami blue (*Hemiargus thomasi bethunebakeri*), and the atala (*Eumaeus atala florida*).

The FWS has acted to protect several South Florida butterfly species. Once found from South Miami to Lower Matecumbe Key, the Schaus swallowtail is known to breed in Biscayne National Park and may be a casual visitor in Everglades National Park. The FWS listed the species as threatened on April 8, 1976, and reclassified it as endangered on August 31, 1984. A recovery plan was approved November 17, 1982, and updated on May 18, 1999, as part of the MSRP. The Miami blue once was endemic to South Florida and gave its name to the local chapter of the North American Butterfly Association. In 1980, Lenczewski reported that it no longer occurred in Everglades National Park, although individuals had been collected at Flamingo as late as 1972. By 2007, only a few colonies, one in Bahia Honda State Park and others in the Florida Keys National Wildlife Preserve, were known to exist. The FWS listed the Miami blue as endangered on April 6, 2012, and committed to preparing a recovery plan. In the same action, it listed three species as threatened due to similarity of appearance: the cassius blue butterfly (*Leptotes cassius theonus*), the ceraunus blue butterfly (*Hemiargus ceraunus antibubastus*), and the nickerbean blue butterfly (*Cyclargus ammon*). On August 6, 2013, the FWS announced its intention to list as endangered the Florida leafwing (thought to exist only in Everglades National Park) and the Bartram’s scrub-hairstreak and to designate critical habitat for the two species. In May 2014, the FWS reopened the comment period for these proposed actions; no final rule has been published as of this writing.\(^{646}\)

To help protect threatened butterfly populations, the Florida Fish and Wildlife Conservation Commission in 2003 formed the Imperiled Butterflies of Florida Working Group (IBWG). Group members include local, state, and federal agencies (including the NPS and the FWS), the University of Florida, and the North American Butterfly Association. Park and SFNRC scientists coordinate their butterfly conservation activities with the IBWG. Among the group’s activities have been attempts to reintroduce species in portions of their former ranges where they no longer occur.

The Miami Blue Chapter of the North American Butterfly Association has taken an active role in encouraging Everglades National Park to make butterfly conservation a factor in management decisions on mowing, brush clearing, prescribed fire, mosquito spraying, and the setting of speed limits on park roads.647

Everglades National Park managers have taken some steps in recent years to protect populations of imperiled butterflies. Butterfly conservation is complex, partly because generalizations across species cannot be made; species-specific and even site-specific information often is required. In 2004, Sue Perry began a program to reintroduce the Miami blue and the atala in Everglades National Park and Biscayne National Park. Perry and others developed a programmatic document for planting butterfly host plants and began implementing it in Shark Valley by placing laboratory-bred larvae on the plants. Her team also developed interpretive signs and handouts to help educate visitors about butterfly life cycles and conservation. The new colonies in the park, however, did not last beyond two generations. Conclusive reasons for the failure of the reintroductions are not known, but drift from mosquito spraying and the 2005 hurricanes are believed to have been factors. The fire management team at the park has been working with the IBWG to adjust prescribed burn practices to minimize destruction of host plants and butterfly larvae. Mortality from pesticides is a more difficult issue. Mosquitoes are a menace to staff and visitors in the summer months, and spraying at Flamingo, in particular, is likely to continue, resulting in drift to mosquito habitat on the coastal prairies. Additionally, pesticides can drift into the park from beyond its borders. Finally, the potential effects of climate change and sea level rise on butterfly populations are largely unknown and are only beginning to be modeled.648

Black Bear

The black bear (Ursus americanus) once inhabited all of eastern North America and was observed throughout the territory and state of Florida in a variety of habitats until well into the twentieth century. Bears were living as far south as Matecumbe Key in the late nineteenth century, and William Stafford noted that Royal Palm State Park was a population center in the 1910s. Dan Beard lacked enough data to include any observations on the bear in his 1938 Wildlife Reconnaissance. Bears, along with wading birds, Florida panthers, and manatees, were touted as attractions at the time of the park’s 1947 dedication. The New York Times wrote that the animal was abundant in

647 Perry, 2; “Tropical Butterfly Colonies Disappearing”; Kimball interview.
648 Sue Perry, Final Report, Planting of Native Plants for Butterflies, Oct. 2006, EVER 42242; “Endangered Butterflies Reintroduced to Wild,” Miami Herald, June 1, 2004; “Tropical Butterfly Colonies Disappearing”; 78 Fed. Reg. 49888; Perry, 2009, 33. 51-53. The presence of a Miami blue specimen in the South Florida Collections Management Center holdings was important evidence supporting the reintroduction effort.
the Everglades, an exaggeration even at that time. Today, the animal survives in nine distinct populations scattered around the state. A population of several hundred bears is centered in the Big Cypress National Preserve and pineland and cypress swamp portions of Everglades National Park.

**Florida Panther**

The Florida panther (*Puma concolor coryi*) has usually been described as a subspecies of the North American puma (also known as mountain lion, cougar, catamount, etc.). The designation of species and subspecies is subject to interpretation, and scientists do not agree on just how many subspecies of *Puma concolor* exist. A single puma species once ranged widely across North America, but growing human populations and habitat destruction have isolated various populations. The panther population in South Florida is the only remaining puma population east of the Mississippi River. A 2000 study of North American puma populations concluded that the genetic differences among populations were small enough that all previous North American subspecies should be subsumed under the single designation *Puma concolor conguar*. Not all scientists studying the Florida panther have accepted this conclusion, and the Florida Fish and Wildlife Conservation Commission continues to employ the *Puma concolor coryi* designation for the Florida panther (figure 12-15, Florida panther photographed from a remote camera).

Florida panthers are solitary predators, with an average range of about 200 square miles for males. There is little overlap in ranges among male panthers, so even a small population requires a large expanse of habitat. Because South Florida remained sparsely settled well into the twentieth century, the panther

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was able to hold on there after it was eliminated from other areas of the Southeast. With the great increase in South Florida’s human population after World War II, the panther’s preferred habitat of upland pine forest, swamp, and hammock vastly decreased. The construction of roads constrained its movements, and the numbers of its favorite prey, the white-tailed deer (*Odocoileus virginianus*), fell dramatically. As panthers grew fewer, they became increasingly inbred and subject to genetic problems. At the establishment of Everglades National Park, no one knew how many panthers survived in South Florida, but the best guess was 50 or fewer individuals. By the 1970s, it was believed that 20 or fewer adults remained. Panthers were more common in the Big Cypress Swamp, but they were present in Everglades National Park, and park managers were concerned about their prospects for survival.651

Early park efforts for the panther consisted of recording sightings and other evidence (tracks and scat) of the cat’s presence. In 1963, the park believed that perhaps 10 or 12 panthers roamed the park. On several occasions in the 1960s and 1970s, park managers released animals bred in captivity by the Piper Brothers at the Everglades Wonder Gardens. In later years, when genetic testing became more precise, individuals in the Everglades panther population showed genetic markers from Latin American puma populations. The presumption is that the Pipers imported animals from other countries to breed with their captive Florida panthers.652 The state of Florida began attaching VHF radio collars to individual cats in 1981 in order to track panther movements (figure 12-16, radio collar used in panther research). The program was expanded to include Everglades National Park in 1987. Because this required that the panthers be tracked by dogs, treed, and temporarily put under anesthesia, the collaring effort was controversial. In January 1983, a female panther died when a tranquilizer dart hit an artery rather than muscle. Protests from Marjory Stoneman Douglas and others led to changes in the capture protocols, but the project continued.653 Because the panther

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653 Dr. William B. Robertson Jr. and Oron L. Bass, “Research Plan for Ecology and Population Dynamics of the Florida Panther in Everglades National Park,” n.d. [1986], EVER 42242, ser. XIII; “Environmentalists: End Tracking of Panthers,” *Miami Herald*, Jan. 21, 1983. One of the more harrowing events in park biologist Oron “Sonny” Bass’s career was the day that Superintendent Mike Finley insisted that Bass accompany him to Marjory Stoneman Douglas’s home to tell her about the park’s plans to place radio collars on panthers. Stoneman was 96 at the time. Finley carefully explained the reasons for the program, and Douglas finally said that she understood, “but I just can’t go along with you.” As they got back in the car, Finley looked at Bass and said, “You kill one of those cats and we’re all dead.” Bass interview.
is an elusive and largely nocturnal animal, scientists in that period believed radio tracking was the only viable way to learn about the cats’ health, habits, and ranges.

As one of the most endangered large mammals in the world (and Florida’s state animal since 1982), the panther has inspired a series of conservation measures. The state stopped all hunting of the species in 1958, and the Department of the Interior listed it as endangered in 1967. In July 1976, the FWS established a panther recovery team, which released a recovery plan in 1981. Everglades National Park biologist James Kushlan was part of the recovery team. The Florida legislature in 1983 established the Florida Panther Research and Management Trust Fund and the Florida Panther Technical Advisory Council. The trust fund, which receives revenue from special panther automobile tags, supports research and public outreach, while the advisory council provides expert advice to state agencies. The tag sales in the 2010s provided about $1.5 million annually for the state’s panther program. At the suggestion of Everglades National Park Superintendent Jack Morehead, in 1986 a Florida Panther Interagency Committee was formed. Represented on the committee are the NPS, the FWS, the Florida Department of Environmental Protection, and the Florida Game and Freshwater Fish Commission. Under the committee’s auspices, a habitat preservation plan was prepared in 1993. The status of the panther was again addressed in the 1999 MSRP for South Florida. To date, the FWS had not declared critical habitat for the panther, evoking fierce criticism and lawsuits from environmental organizations.654

The panther has an important role in the lives of the Miccosukee people. Most medicine men in the tribe come from the tribe’s panther clan. Tribal members believe that panther claws and tails have important medicinal and spiritual properties. Residents of the Miccosukee Reserved Area also have concerns about panther interference with the use of ceremonial locations and the safety of their children and livestock from panther depredations. An incident in the Big Cypress National Preserve highlights some of the sensitive issues regarding the Miccosukee Tribe and panthers. In May 2004, because a 10-month-old male panther was frequenting a tribal ceremonial site, the panther was moved 60 miles north to a state forest. In January 2005, another male killed the relocated panther.655

By the early 1990s, the signs of inbreeding in the Florida panther population led scientists to fear that the subspecies was doomed. Many panthers had congenital heart defects, fertility and neonatal survival were poor, and estimates of the total population hovered around 30. The FWS approved the introduction of female cougars from Texas. Just a few hundred years ago, Texas cougars and Florida panthers

654 Federal listing, 32 Fed. Reg. 4001; Multi-Species Recovery Plan, 4-124, 4-129.
constituted a single, interbreeding population. The FWS ruled that any offspring of an introduced female would have endangered species status. Eight female Texas cougars were released in South Florida in 1995, two of them within Everglades National Park. Initial results of this experiment seemed quite promising. Hybrid offspring had healthy hearts and better survival rates, and most observers have pronounced the cross-breeding a success. An increase in the panther population seems to confirm this; in 2012, the Florida Fish and Wildlife Conservation Commission estimated a population of 100 to 160 adults and subadults. The discovery between 2003 and 2010 of a number of hybrid cats with heart defects has cast some doubt on the ultimate effectiveness of the cross-breeding effort.656

From 1978 until 2009, Everglades staff were able to fairly consistently monitor the radio-collared cats from fixed-wing aircraft. Budget constraints since 2009 have forced the park to turn to passive monitoring using remotely triggered cameras. Everglades staff monitors the panther subpopulation east of Shark Slough. The panther subpopulation west of Shark Slough is monitored by Big Cypress National Preserve staff, because that population resides mainly in the preserve but occasionally crosses over into Everglades. Statewide, panther researchers are increasingly using GPS collars that can be monitored without overflights. Methods commonly used to monitor panthers are often time-consuming and stressful to the animals. Each winter, the FFWCC, with assistance from federal agencies, tracks and captures a certain number of collared and uncollared panthers. Animals are examined and weighed, blood and skin samples are taken, and any necessary vaccines and medicines are administered. Panther kittens under six weeks of age are also examined, sampled, and marked with a transponder identification chip. Everglades National Park scientists anticipate the future use of less expensive and intrusive

monitoring methods. One such method is the use of biopsy darts, which collect a small skin and tissue sample inside a needle and then drop off the animal. Another promising technique is scat analysis. DNA in scat allows researchers to distinguish individuals, and hormones provide information on nutritional health and reproductive status.657

The long-term prospects for the panther remain uncertain. Its habitat continues to be reduced and fragmented by development. The automobile is the primary enemy of the panther, because roads divide up its range and panther/automobile collisions kill 10, 15, or more animals annually. Educating the public on how to coexist with panthers is an important focus of panther recovery efforts. The panther’s survival depends on an unprecedented level of human intervention. The cross-breeding with Texas cougars was one such management intervention, and the construction of costly panther underpasses beneath I-75 (Alligator Alley) and U.S. 1 was another. One focus of current recovery efforts is the establishment of a breeding population north of the Caloosahatchee River. In May 2014, a recently formed Panther Recovery Implementation Team proposed a program to pay landowners a set sum per acre to maintain panther habitat. The panther subpopulation in Everglades National Park east of Shark Slough is small compared to other subpopulations and mixes little with the others. It is an important population, however, and would be especially so if the other populations were ravaged by disease. The FFWCC spends its funds mostly on the larger subpopulations and relatively little in Everglades National Park.658

**Manatee**

The Florida manatee (*Trichechus manatus latirostris*) is a large, light brown to gray herbivorous marine mammal (figure 12-17, manatee). It and its closely related subspecies, the Antillean manatee (*Trichechus manatus manatus*) belong to the mammalian order Sirenia. The animal is found in shallow coastal Florida waters from the Georgia border clear around to the Suwannee River on the Gulf Coast. After 1947, Everglades staff were able to regularly observe manatees, mostly in and around Whitewater Bay and the Shark, Broad, and Rogers Rivers. Everglades National Park biologist Joseph Moore published an important article on the manatee in 1951 and developed the now-standard practice of identifying individuals by the pattern of propeller scars on their backs.


Manatees have no predators besides humans. Other than stress from cold water, the major threat to manatees is the careless operation of motorboats. In a study of 520 manatee carcasses found in park waters between 1974 and 2004, a cause of death could be determined in 286 cases. Of these, 115 (40 percent) were found to have died from boat collisions. Because manatees move around often in search of food, it is extremely difficult to arrive at accurate population counts. The best estimate of the current minimum total population is 3,300.659

An 1893 Florida law made it illegal to kill or capture manatees, but enforcement was lax, and animals continued to be taken, especially when other sources of food were short. Protection of the manatee improved in the 1970s, with the passage of the Marine Mammal Protection Act (1972) and Florida’s Manatee Sanctuary Act (1978). The Florida law imposed speed limits on motorboats in waters frequented by manatees. The U.S. Fish & Wildlife Service placed the manatee on the list of endangered species on March 11, 1967, under the 1966 act. The FWS designated critical habitat for the Florida manatee effective September 24, 1976. It then produced a recovery plan in 1989, which has been revised twice, most recently in 2001. The plan’s goal “is to assure the long-term viability of the Florida manatee in the wild, allowing initially for

reclassification to threatened status and, ultimately, removal from the List of Endangered and Threatened Wildlife.” 660

As the Fish & Wildlife Service stated in its latest five-year review of the species, “recovery efforts for the Florida manatee are highly complex, given the tremendous amount of controversy and conflict associated with ensuring the persistence of this species.” Recreational interests in Florida have from time to time argued that manatee populations are stable and protective measures too limiting. In December 2007, hearings convened by the Florida Fish and Wildlife Conservation Commission to discuss a change to state endangered status proved quite contentious. Everglades staff monitors manatee populations in park waters and works closely with state and federal agencies on long-term recovery efforts. The main protective strategy employed by the park is enforcement of manatee zone speed limits and other boating regulations.661

Flora

In addition to the royal palm, mentioned by Dan Beard in his 1938 Wildlife Reconnaissance, ferns and epiphytes (air plants), especially orchids, were the flora that park managers were most concerned about preserving in the 1950s and 1960s (figure 12-18, an air plant). For years prior to the park’s establishment, some gardeners and collectors had treated the area as a public nursery, removing attractive plants as they pleased. In fall 1950, for example, rangers caught six teenage boys in the act of removing air plants and orchids.662 Dr. Frank C. Craighead Sr., a noted authority on Everglades flora and a park collaborator, wrote two books on South Florida orchids, epiphytes, and trees between 1960 and 1971.663 In the 1960s, Craighead was a bit frustrated with park managers, believing that at times they failed to adequately protect rare flora in creating trails and fire roads and mowing along motor roads. In 1979, Lloyd Loope and George Avery prepared a report on rare plant species in and near Everglades National Park. The authors assigned a level of concern, an appropriate management

662 SMR, Nov. 1950.
663 The books were Orchids and Other Air Plants of Everglades National Park (Coral Gables: University of Miami Press, 1963) and The Trees of South Florida (Coral Gables: University of Miami Press, 1971).
action, and a level of monitoring for each species that they listed. The FWS has listed two plants found in the park, one as endangered and another as threatened.

*Crenulate Lead-Plant*

The crenulate lead-plant (*Amorpha crenulata*) is a shrub that grows to a maximum height of about five feet and is found only on pine uplands in South Florida. As most of these areas were developed in the twentieth century, the plant began to be found in fewer places. The FWS listed the plant as endangered on July 18, 1985. A recovery plan was approved October 7, 1988, and a revised recovery plan was included in the MSRP, approved May 18, 1999. No critical habitat has been designated for the crenulate lead-plant. In 2007, the FWS could locate only seven populations of the plant. Four of these were naturally occurring and three were reintroductions of the plant on protected sites. The crenulate lead-plant is now entirely dependent on intensive management actions for its continued survival.

*Garber’s Spurge*

Garber’s spurge (*Chamaesyce garberi*) is a hairy perennial herb with wiry, erect stems up to 12 inches long. The plant once was found growing in upland areas and beach ridges in a variety of locations in Dade, Collier, and Monroe Counties. It is fire dependent. Urbanization has eliminated it from the Atlantic coastal ridge and all areas of Collier County. Garber’s spurge currently has about 17 known populations, two of the largest of which are in Everglades National Park, at northwest Cape Sable and Long Pine Key. Garber’s spurge was listed as threatened under the ESA on July 18, 1985. A recovery plan was approved October 7, 1988, and a revised recovery plan was included in the MSRP, approved May 18, 1999.

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666 FWS, *Garber’s Spurge, 5-Year Review Summary and Evaluation* (Vero Beach, Fla.: FWS, 2007).